Interim Report

the ALBERTA REGIONAL FARM ENTERPRISE RESEARCH PROJECT

1982 VERMILION REGION

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THE ALBERTA FARM ENTERPRISE RESEARCH PROJECT 1982

VERMILION REGION

by
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Production and Resource Economics Branch
Economic Services Division
Alberta Department of Agriculture
1984

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SECTION I

INTRODUCTION

The Alberta Regional Farm Enterprise Research Project was initiated by the Production and Resource Economics Branch in the Vermilion Region in the winter of 1979. The main objective was to obtain 1978 production costs and returns estimates for the main farming enterprises, namely, crops, cattle feeding, hogs and milk production. Following an appraisal of the 1978 study year and the general enthusiasm expressed among the participants, it was felt that the project should be continued but that changes were required to enhance the analysis of raw data.

The number of farms participating during the last four study years were 45, 54, 43, and 54 for 1978, 1979, 1980, and 1981, respectively. A major improvement to the study method occurred in 1979 when the questionnaire was revised and the analysis computerized. Since then, changes made to the questionnaire and computer package were kept at a minimum so as to allow participants to compare the performance of their farm over time. Reports summarizing each of the 1979-1981 study years have been published, the last of which was released in December, 1983.

Approximately 74 per cent of the 1981 participants (39 farmers) were retained on study in 1982. Major enterprises studied in 1982 included cow-calf and cattle feeding, milk production, crops, and hogs. As in 1981, the Production and Resource Economics Branch continued to express its concern about the success of beginning farmers by involving new farm entrants in the project. The general consensus was that technical/-agronomic data collected from beginning farmers would be desirable in designing special programs to assist such farmers. Thirty-three per cent of the 1982 participants were classified as beginning farmers. In response to the interest in costs and returns by soil type, new study participants in 1982 were selected on the basis of soil type thereby adding accuracy and representativeness to the information. This report summarizes the results of the 53 farm records that were completed and analyzed for the 1982 study year.

As in previous years, the degree of enterprise mix on the farms surveyed in the Vermilion region was quite high as 65 per cent had both grain and livestock on their farms. Of the 19 specialized farms studied, 15 were grain farms while the remaining 4 had hogs. A breakdown of the enterprises analyzed and their respective numbers is as follows:

ENTERPRISE	NUMBER ANALYZED
Wheat	44
Canola	36
Barley	54
Oats	26
Summerfallow	23
Hay	33
Greenfeed	13
Silage	12
Mixed Grain	3
Hog Farrow-Finish	8
Milk Production	4
Cattle Finishing	4
Cow-Calf Finish	12
Cow-Calf Yearling	5
Cow-Calf	9
TOTAL	286

Objectives

The Alberta Farm Enterprise Research Project was developed to help the agricultural producer analyze his farming operation(s) using the enterprise approach. Different from the original Farm Business Analysis (F.B.A.) program, this project was designed to provide the farmer (participant) with an analysis of each crop and livestock enterprise on his farm. In addition, each participant received a personal computerized printout which compared his results with that of the group.

Extension personnel have often found themselves short of enterprise/whole farm costs and returns information when dealing with farm clientele at the field level. Physical and financial production data for different farming enterprises vary not only within the region but also from farm to farm depending upon the enterprise mix, moisture levels during the growing season, soil type, management practices, etc. Consequently, the objectives of the Alberta Regional Farm Enterprise Research Project are as follows:

1. To document detailed input/output and costs/returns data on both an enterprise and total farm basis for the six farming regions of Alberta;
2. To document enterprise/whole farm data (physical and financial) that accurately describe the relative performance of beginning farmers;
3. To provide each participant with accurate and detailed costs/returns information on both an enterprise and total farm basis;
4. To provide each participant with a comparative interpretation of his farming enterprise(s) relative to the total group studied in the region;
5. To evaluate the relative performance of different farming systems on a regional basis and changes in performance over time;
6. To regularly monitor and periodically update the above data base;
7. To establish and maintain contact with the farming community and to be able to respond promptly to the needs of producers;
8. To provide headquarters staff, agri-business, and extension field staff with accurate and comprehensive resource information.

The Study Sample

The Vermilion Region (North East Region) is predominantly a mixed farming area. Farmers in this area usually undertake complementary enterprises in order to maximize their farming income. The most common enterprise mix used is that of either grain and cattle or grain and hogs. According to the 1981 Census[1], there were 9,999 farms in the Vermilion Region with an average acreage of 751 acres and an average value of farm sales of $44,750. As well, approximately 25 per cent of the farms in this region had farm sales in excess of $50,000. As to the classification of farms there were 3,256 "small grain" farms, 2,352 cattle farms and 1,358 wheat farms, all of which reported farm sales in excess of $2,500.

Participants for the project were selected on the basis of their main farming enterprise. To ensure that all of the twelve agricultural

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[1] 1981 Census of Agriculture for Alberta - Alberta Statistics Branch, November, 1982.

districts in the Vermilion Region were well represented, the Regional Farm Economist and District Agriculturists were asked to select the participants for the desired enterprises. A total of 16 different enterprises were analyzed relative to the 1982 calendar year.

The following map indicates the area of study, and also the location of the agricultural district offices within the Vermilion Region.

FIGURE 1: VERMILION REGION

As many as three personal visits were necessary by some participants to record the data required for a complete analysis. Participants retained on study from previous years were much easier to analyze as their investment and inventory data were already established and only required up-dating. Livestock producers were contacted early in the year to accurately establish their beginning year inventory. The final visit occurred in the early part of 1983 to record total annual farm expenditures and receipts for 1982.

The questionnaire which was used to gather the information contained three sections. Section I was simply a record of all expenses and receipts for the farm and was very similar to the information required for income tax purposes. Section II was designed to record data specific to each enterprise and essentially relied on the participant to best allocate his total farm expenses and receipts. Section III involved the recording of physical and financial data specific to each enterprise that was not recorded in Sections I and II.

Method of Analysis

All costs and returns data presented in this report are on a per unit of production basis. For example, information for grain production is on a per acre and per bushel basis while livestock is on a per head sold basis. The costs shown in the summary pages were calculated for each category of expense by dividing the total of all expenses by the total number of units of production. For example, the fertilizer expense for wheat grown on five farms is calculated by adding the total fertilizer expense for each farm, and then dividing by the total wheat acreage for the five farms. Thus, the costs and returns were weighted on a per unit of production basis rather than calculated using the simple average approach. In some cases, certain cost items were not incurred in an individual operation and this was accounted for in the method used in determining the average costs for each acre and animal unit on study.

Receipts: Returns for each enterprise represented the actual figures recorded for income tax purposes. However, the total value of the crop grown during the study year had to be estimated since normally, the total harvest is not completely sold until sometime during the next calendar year.

Livestock receipts coincided directly with the amount recorded for livestock sales. In many instances, livestock producers were either in an expansionary or liquidating phase and as such cash receipts would not truly represent an average year of livestock production. To overcome this, the herd was valued at the beginning as well as at the end of the year and recorded as the livestock inventory change in the receipts

section, thereby lending to a more accurate assessment of the livestock operation.

Labour Costs: A majority of the study participants relied on hired part-time labour to perform some of the necessary farming operations. Total labour costs as reported in the year-end statement were allocated to the various enterprises on the farm by the participants themselves, as they were most familiar with what the hired "hand" was doing. The operator's labour was valued at an amount comparable to that required to hire a skilled farm labourer. The labour provided by the operator's wife represented the work that she actually did for a given enterprise. Child labour which was quite common in livestock operations was valued below the minimum wage rate.

Material Costs: Most supplies used in grain and livestock production were bought during the production year and recorded as such in the year-end statement. However, it was necessary to record the inventory of many inputs such as fertilizer, seed, and chemicals, as these inputs might have been purchased from the previous year for use in the production year under study. An attempt was made to accurately monitor all costs of inputs used during the twelve month production period, regardless of when purchased. Home-grown seed and feed were valued at market prices and entered as such in the operating cost section of the enterprise analysis.

Miscellaneous Costs: Property taxes, insurance, utilities, etc. were valued at their actual costs and allocated to each enterprise by the study participant. Included as well in this category of expense were the purchase of small tools, accounting and legal fees, and building repairs.

Machine Operating Costs: Machine operation costs included repairs, fuel, lubrication and insurance expenses. Machine operating costs were categorized into various classes (to allow for easier allocation to a specific enterprise), and included farm power machinery, general crop machinery, haying machinery, specialty crop machinery, dairy and beef equipment, swine equipment, poultry equipment, general livestock equipment, and miscellaneous livestock equipment. Also, many of the study participants provided the cost of fuel and repairs for car and power machinery.

Investment: Study participants indicated the market value of all investment items and also the amount of liabilities held in the form of long term, intermediate, and short term loans. With this information, the equity position was established and a long term percentage rate of return of 7.0 per cent was applied to arrive at an opportunity cost on the operator's investment. Opportunity costs are indicated in Section C of the costs and returns tables and together with the operating costs, long term interest paid, and the value of unpaid labour make up the total production costs.

The depreciation rate for each category of investment was established by the study participant. As indicated earlier, machines were grouped into various categories in order to ease the task of allocating the operating and investment costs. This approach also permitted the participant to use a suitable depreciation rate for each category of farm equipment. An allowance for depreciation on building improvements and machinery is indicated in the Operating Cost Section of the enterprise report.

SECTION II

SUMMARY OF COSTS AND RETURNS - CROPS

This section provides detailed information on the average regional costs and returns for the various crops analyzed. Four (4) of the 53 farms on study did not provide any costs and returns data on crop production. As in the previous years of study, barley was the most extensively grown cereal grain. It was grown by 84 per cent of the participants who had crop enterprises. Costs and returns for wheat production were reported by 69 per cent of the farms in 1982. Canola and oats were also grown extensively by the study participants.

The data provided in Tables 6 to 12 are divided into four sections. Section A provides information relating to returns. Acreage per farm is simply the average size of the crop grown by study participants in a particular group. The yield per acre is a weighted average for the acres under study. Receipts per acre include an estimated total return for the crop and also miscellaneous crop receipts such as insurance and stabilization payments, value of aftermath, patronage payments, etc. Receipts per acre and receipts per bushel or ton are shown for comparison.

Section B presents the operating cost data which basically include all "out-of-pocket" costs and an allowance for depreciation. Most participants have expressed an interest in knowing their operating cost for each bushel or ton produced as it can be interpreted as a short-run breakeven price required to cover their cost of production.

Section C indicates the total cost of production on a per acre and per unit of production basis. Total operating cost, plus an opportunity cost on the equity portion of investment, plus long term interest paid plus unpaid family labour equal total production cost. Any income received over and above the total production cost is a return to management or profit.

Section D provides a summary of the costs and returns for a given crop. The return over operating costs is usually the figure that is referred to when choosing among different crops. Costs which are not

included in the operating cost section may be considered as farm overhead costs and may not always be considered in decision making. Total investment and labour as used by an enterprise are also indicated in Section D and are most useful for management purposes.

Tables 3, 4 and 5 provide summaries of the costs and returns for the nine crops studied in the Vermilion Region. A cost comparison by land tenure (owned land versus rented land) is provided for barley, wheat, canola and oats. The cost structure for grain production on rented land differs from that on owned land as rented land cost is a cash item and is in all cases lower than the non-cash imputed opportunity cost associated with owned land. Assuming similar yields for both types of land tenure, higher operating costs but lower total production costs per bushel can be anticipated for rented land versus owned land.

With the high cost of machinery many farmers have turned to renting land to either justify the purchase of farm equipment or to increase their overall farm income. Secondly, with land being the most expensive input, many operators have used their limited money supply for buying equipment and turned to cash rent or crop share arrangements. Generally speaking, total production cost per unit of production is lower on rented land since the cash rent/crop share value is lower than the interest cost charged on the market value of owned land. However, the cash costs which include the cash rent/crop share are higher on a per unit of production basis for rented land compared to owned land.

With respect to the four major crops grown in the Vermilion Region, namely wheat, barley, canola and oats, 1982 yields were above the average reported for 1980 and 1981. However, wheat, barley and oats prices as reported by the participants for 1982 remained more or less stable during the three year period. It is important to note that yields were reported to be significantly lower on rented land versus owned land for all the main crops studied. Possible reasons for this are:

1. Less use of fertilizers and chemicals on rented land;
2. More timely field operations on owned land;
3. Varying cultural practices by different tenants over time;

4. Tendency to intensify management and cultural skills on owned land versus rented;
5. Generally, due to the unfamiliarity with newly acquired rented land, management "know hows" are not optimized.

Operating costs per acre for wheat, barley, and canola were comparable averaging $99.20 per acre on owned land and $124.47 on rented land. Oats grown on owned land had operating costs of $93.27 per acre as compared to $94.29 per acre on rented land. The remaining crops studied had operating costs ranging from $56.39 per acre for greenfeed to $98.13 for flax production. It should be pointed out that costs and returns by land tenure were not available for mixed grain, silage and greenfeed, hay and flax. Operating costs per acre for summerfallow averaged $35.95 on owned land and was viewed by many grain farmers as crucial in deciding their rotation, especially, whether to continuous crop or fallow-crop. Depending upon the area in which the farm is located and the management ability of the producer these costs may or may not be offset by the higher yields for crops grown on summerfallow.

The return over operating costs in 1982 for all crops surveyed ranged from -$20.44 per acre for mixed grain to $86.58 for wheat on owned land. As to the four main crops grown in the Vermilion Region, returns over operating costs on rented land were -$5.01, -$14.91, $13.43, and $8.68 per acre for barley, oats, canola, and wheat, respectively. Due to the lower operating capital requirement for crop production on owned land, returns over operating costs were higher ranging from $15.74 per acre for oats to $86.58 per acre for wheat.

Total production costs include the operating costs, an opportunity cost on the operator's equity portion of investment, interest paid on investment items, and a value for the operator's and family labour. If returns are short of covering these costs the operator will be forced to take a lower rate of return on his investment and labour thus the need to shift his resources to more profitable activities in the long-run. However, if the total production cost is covered the residual or profit can be interpreted as the amount left to compensate the operator for his risk(s) and management ability.

The only crop surveyed in 1982 that had sufficient returns to cover total production costs was wheat grown on owned land which had a return

to management of $5.39 per acre. The other enterprises had negative returns to management ranging from -$7.13 per acre for flax to -$71.09 for mixed grain.

Table 1 indicates the investment per acre for the crops surveyed in the Vermilion Region in 1982. Items included under investment were land, power and general machinery, buildings and improvements. Investment was determined based on market value. In the case of land investment both the operator's and landlord's portions were taken into account.

TABLE 1: SUMMARY OF INVESTMENT FOR CROPS GROWN ON OWNED LAND - 1982

CROP	LAND INVESTMENT	POWER MACHINERY	GENERAL MACHINERY	BUILDINGS & IMPROVEMENTS	TOTAL
			$ per acre		
Barley	702.75	105.70	63.30	41.57	913.32
Wheat	645.58	119.78	63.93	43.73	873.02
Canola	690.72	124.35	64.59	46.61	926.27
Oats	663.45	102.20	61.99	37.78	865.42
Summerfallow	571.77	70.66	39.88	26.02	708.33
Mixed Grain	724.12	48.11	57.81	46.10	876.14
Greenfeed	584.83	60.78	50.92	25.06	721.59
Hay	577.11	57.70	63.36	32.78	730.95
Silage	760.64	85.41	60.52	23.72	930.29

Study participants indicated their total labour input for each enterprise on the farm which was subsequently allocated to the hired man, the operator, and his family. Table 2 shows the total labour requirement for each crop analyzed. The average cropped acre on owned land required 3.19 hours of labour at an average cost of $20.42 per acre in comparison to 1.79 hours of labour at an average cost of $12.71 per acre on rented land.

Presented in Tables 6 to 12 inclusive are the average costs and returns for all crops studied in the Vermilion Region. A breakdown of the total operating costs is shown as many participants are interested in comparing specific cost items such as cash rent, crop share, fuel and repair, hired labour, etc., on a per acre basis over time.

TABLE 2: LABOUR REQUIREMENT FOR CROPS SURVEYED IN THE VERMILION REGION - 1982

CROP	HOURS PER ACRE	COST ($) PER ACRE
Barley - Owned	2.92	20.25
Barley - Rented	2.13	15.37
Wheat - Owned	3.10	21.58
Wheat - Rented	2.05	14.66
Canola - Owned	3.02	21.50
Canola - Rented	1.68	12.08
Oats - Owned	3.70	22.52
Oats - Rented	1.30	8.73
Summerfallow - Owned	2.22	16.24
Mixed Grain	1.67	11.39
Flax	1.49	10.15
Greenfeed	3.56	20.94
Hay	3.87	17.71
Silage	2.74	17.36
Average Labour on Owned Land	2.99	20.42
Average Labour on Rented Land	1.79	12.71

TABLE 3: SUMMARY OF COSTS AND RETURNS FOR CROPS SURVEYED - 1982 VERMILION REGION

	Barley		Wheat		Canola	
	Owned	Rented	Owned	Rented	Owned	Rented
A. INCOME						
Number of Farms	41	10	34	5	23	10
Average Acreage	214.32	323.90	169.18	199.00	198.30	308.80
Yield (Bu/Acre)	63.82	53.63	40.33	33.05	28.00	22.32
RECEIPTS ($/Acre)	125.25	105.41	186.77	148.66	171.25	136.46
	$ Per Acre					
B. PRODUCTION COSTS						
Material Cost	35.02	38.02	37.28	42.87	37.55	39.42
Machine Operating	17.43	13.20	17.67	15.92	17.64	13.39
Miscellaneous	21.14	45.56	21.81	61.32	23.60	54.80
TOTAL CASH COST	73.59	96.78	76.76	120.11	78.79	107.61
Depreciation	20.69	13.63	23.43	19.87	24.33	15.42
TOTAL OPERATING COST	94.28	110.41	100.19	139.98	103.12	123.03
Interest on Equity	49.65	6.39	51.27	8.60	52.71	7.42
Long Term Interest Paid	16.77	11.37	13.72	28.53	14.59	14.43
Unpaid Labour	16.86	11.03	16.19	10.42	16.74	7.60
TOTAL PRODUCTION COST	177.55	129.21	181.38	187.53	187.14	152.49
C. MANAGEMENT FACTORS						
Return Over Operating Costs	30.97	-5.01	86.58	8.68	68.13	13.43
Return To Management	-52.30	-23.80	5.39	-38.87	-15.89	-16.03
Break-Even Yield To Cover:						
- Cash Cost (Bushels/Acre)	37.55	49.38	16.58	26.69	12.87	17.61
- Operating Cost (Bushels/Acre)	48.10	56.33	21.64	31.11	16.85	20.14
- Total Production Cost (Bushels/Acre)	90.59	65.74	39.17	41.67	30.58	24.96

TABLE 4: SUMMARY OF COSTS AND RETURNS FOR CROPS SURVEYED - 1982 VERMILION REGION

	Oats		Summerfallow	Mixed Grain	Flax
	Owned	Rented	Owned		
A. INCOME					
Number of Farms	23	9	21	3	3
Average Acreage	68.91	76.67	211.75	111.67	96.67
Yield (Bu/Acre)	84.52	70.00	-	36.27	20.69
RECEIPTS ($/Acre)	109.01	79.38	2.02	52.66	144.81
			$ Per Acre		
B. PRODUCTION COSTS					
Material Cost	30.31	27.06	-	13.89	35.74
Machine Operating	17.76	11.78	11.58	15.24	14.99
Miscellaneous	25.21	38.66	11.22	31.07	31.11
TOTAL CASH COST	73.28	77.50	22.80	60.20	81.84
Depreciation	19.99	16.79	13.15	12.90	16.29
TOTAL OPERATING COST	93.27	94.29	35.95	73.10	98.13
Interest on Equity	49.08	11.21	45.85	24.24	37.31
Long Term Interest Paid	12.56	5.61	8.01	15.01	8.51
Unpaid Labour	17.18	6.60	13.80	11.39	7.99
TOTAL PRODUCTION COST	172.09	117.70	103.62	123.74	151.94
C. MANAGEMENT FACTORS					
Return Over Operating Cost	15.74	-14.91	-33.93	-20.44	46.68
Return To Management	-63.08	-38.32	-101.60	-71.09	-7.13
Break-Even Yield To Cover:					
- Cash Cost (Bushels/Acre)	56.81	68.34	-	41.52	11.69
- Operating Cost (Bushels/Acre)	72.30	83.15	-	50.41	14.02
- Total Production Cost (Bushels/Acre)	133.40	103.79	-	85.34	21.71

TABLE 5: SUMMARY OF COSTS AND RETURNS FOR CROPS SURVEYED - 1982 VERMILION REGION

	Greenfeed	Hay	Silage
A. INCOME			
Number of Farms	13	29	12
Average Acreage	105.42	85.9	122.25
Yield (Tons/Acre)	1.58	1.36	4.57
RECEIPTS ($/Acre)	78.65	76.76	128.00
	- - - - - - - - - - - - - - - - - - - $ Per Acre - - - - - - - - - - - - - - -		
B. PRODUCTION COSTS			
Material Cost	13.54	10.90	22.39
Machine Operating	15.20	14.11	15.73
Miscellaneous	13.83	21.07	22.28
TOTAL CASH COST	42.57	46.08	60.40
Depreciation	13.82	13.99	12.97
TOTAL OPERATING COST	56.29	60.07	73.37
Interest on Equity	41.02	39.85	41.61
Long Term Interest Paid	19.93	14.48	34.49
Unpaid Labour	19.01	15.63	14.23
TOTAL PRODUCTION COST	136.35	130.03	163.71
C. MANAGEMENT FACTORS			
Return Over Operating Cost	22.36	16.69	54.63
Return To Management	57.70	-53.27	-35.71
Break-Even Yield To Cover:			
- Cash Cost (Tons/Acre)	0.86	0.82	2.15
- Operating Cost (Tons/Acre)	1.14	1.07	2.62
- Total Production Cost (Tons/Acre)	2.75	2.31	5.84

TABLE 6: SUMMARY OF COSTS AND RETURNS FOR WHEAT PRODUCTION - 1982

		OWNED		RENTED	
A.	INCOME				
	Number of Farms	34		5	
	Acreage Per Farm	169.18		199	
	Yield (Bu/Acre)	40.33		33.05	
		- - - - - - - - $/Acre - - - - - - - -			
	Total Value	178.89		146.18	
	Crop Insurance Receipts	0.08			
	Miscellaneous Receipts	7.80		2.48	
	Total Receipts	186.77	4.63/Bu	148.66	4.50/Bu
B.	OPERATING COSTS				
	Fertilizer	19.79		24.84	
	Chemicals	9.63		10.77	
	Seed Purchased	0.15			
	Home-Grown Seed	7.71		7.26	
	Custom Work Hired	1.47		2.60	
	Crop and Hail Insurance	2.41		2.81	
	Cash Rent and Crop Share			33.12	
	Machinery Operating Costs	17.67		15.92	
	Miscellaneous Equipment	0.14			
	Building Repairs	0.70		1.16	
	Interest on Operating Capital	3.57		9.56	
	Utilities	1.94		1.39	
	Other Insurance	0.73		0.88	
	Property Taxes	2.98		1.92	
	Accounting and Legal Fees	0.82		0.76	
	Other	0.92		2.14	
	Hired Labour	5.39		4.24	
	Tools Purchased	0.73		0.75	
	Depreciation	23.43		19.87	
	Total Operating Costs	100.19	2.48/Bu	139.98	4.24/Bu
C.	PRODUCTION COSTS				
	Operating Costs	100.19		139.98	
	Interest on Equity - Owned Land	37.82			
	Interest on Equity - Improvements	3.07		1.83	
	Interest on Equity - Machinery	10.20		6.77	
	Interest on Equity - Supplies	0.18			
	Long Term Interest Paid	13.72		28.53	
	Unpaid Labour	16.19		10.42	
	Total Production Costs	181.38	4.50/Bu	187.53	5.67/Bu
D.	MANAGEMENT FACTORS				
	Return Over Operating Costs	86.58	2.15/Bu	8.68	0.26/Bu
	Return To Management	5.39	0.13/Bu	-38.87	-1.18/Bu
	Land Investment	645.58		875.46	
	Building and Machinery Investment	227.44		194.04	
	Labour (Hours Per Acre)	3.10		2.05	

TABLE 7: SUMMARY OF COSTS AND RETURNS FOR BARLEY PRODUCTION - 1982

		OWNED		RENTED	
A.	INCOME				
	Number of Farms	41		10	
	Acreage Per Farm	214.32		323.90	
	Yield (Bu/Acre)	63.82		53.63	
		- - - - - - - - $/Acre - - - - - - - -			
	Total Value	123.30		101.89	
	Crop Insurance Receipts	0.40			
	Miscellaneous Receipts	2.55		3.51	
	Total Receipts	125.25	1.96/Bu	105.41	1.97/Bu
B.	OPERATING COSTS				
	Fertilizer	20.84		25.05	
	Chemicals	8.71		7.22	
	Seed Purchased	1.05		1.94	
	Home-Grown Seed	4.42		3.81	
	Custom Work Hired	2.09		1.95	
	Crop and Hail Insurance	1.67		2.18	
	Cash Rent and Crop Share			22.93	
	Machinery Operating Costs	17.35		13.20	
	Miscellaneous Equipment	0.08			
	Building Repairs	0.84		1.26	
	Interest on Operating Capital	4.99		6.63	
	Utilities	1.88		0.93	
	Other Insurance	0.82		0.75	
	Property Taxes	2.79		1.07	
	Accounting and Legal Fees	0.67		0.81	
	Other	1.32		2.31	
	Hired Labour	3.39		4.34	
	Tools Purchased	0.70		0.39	
	Depreciation	20.69		13.63	
	Total Operating Costs	94.28	1.48/Bu	110.41	2.06/Bu
C.	PRODUCTION COSTS				
	Operating Costs	94.28		110.41	
	Interest on Equity - Owned Land	37.21			
	Interest on Equity - Improvements	2.76		1.91	
	Interest on Equity - Machinery	9.42		4.45	
	Interest on Equity - Supplies	0.26		0.03	
	Long Term Interest Paid	16.77		11.37	
	Unpaid Labour	16.86		11.03	
	Total Production Costs	177.55	2.78/Bu	139.21	2.60/Bu
D.	MANAGEMENT FACTORS				
	Return Over Operating Costs	30.97	0.49/Bu	-5.01	-0.09/Bu
	Return To Management	-52.30	-0.82/Bu	-33.80	-0.63/Bu
	Land Investment	702.75		612/55	
	Building and Machinery Investment	210.57		143.34	
	Labour (Hours Per Acre)	2.92		2.13	

TABLE 8: SUMMARY OF COSTS AND RETURNS FOR CANOLA PRODUCTION - 1982

		OWNED		RENTED	
A.	INCOME				
	Number of Farms	23		10	
	Acreage Per Farm	198.30		308.80	
	Yield (Bu/Acre)	28.00		22.32	
		- - - - - - - - $/Acre - - - - - - - -			
	Total Value	168.22		133.91	
	Crop Insurance Receipts	1.00			
	Miscellaneous Receipts	2.03		2.55	
	Total Receipts	171.25	6.12/Bu	136.46	6.11/Bu
B.	OPERATING COSTS				
	Fertilizer	19.66		24.56	
	Chemicals	14.71		10.21	
	Seed Purchased	1.21		3.27	
	Home-Grown Seed	1.97		1.38	
	Custom Work Hired	2.05		1.69	
	Crop and Hail Insurance	1.93		2.04	
	Cash Rent and Crop Share			30.75	
	Machinery Operating Costs	17.64		13.39	
	Miscellaneous Equipment	0.13		0.12	
	Building Repairs	1.02		1.14	
	Interest on Operating Capital	4.75		7.54	
	Utilities	2.07		1.13	
	Other Insurance	0.88		0.92	
	Property Taxes	2.95		1.24	
	Accounting and Legal Fees	0.89		0.97	
	Other	1.40		2.42	
	Hired Labour	4.76		4.48	
	Tools Purchased	0.79		0.35	
	Depreciation	24.33		15.42	
	Total Operating Costs	103.12	3.68/Bu	123.03	5.51/Bu
C.	PRODUCTION COSTS				
	Operating Costs	103.12		123.03	
	Interest on Equity - Owned Land	38.71			
	Interest on Equity - Improvements	3.24		2.20	
	Interest on Equity - Machinery	10.57		5.21	
	Interest on Equity - Supplies	0.19		0.01	
	Long Term Interest Paid	14.59		14.43	
	Unpaid Labour	16.74		7.60	
	Total Production Costs	187.14	6.68/Bu	152.49	6.83/Bu
D.	MANAGEMENT FACTORS				
	Return Over Operating Costs	68.13	2.43/Bu	13.43	0.60/Bu
	Return To Management	-15.89	-0.57/Bu	-16.03	-0.72/Bu
	Land Investment	690.72		603.94	
	Building and Machinery Investment	235.55		159.75	
	Labour (Hours Per Acre)	3.02		1.68	

TABLE 9: SUMMARY OF COSTS AND RETURNS FOR OATS AND FLAX PRODUCTION - 1982

		OATS		FLAX	
A.	INCOME				
	Number of Farms	23		3	
	Acreage Per Farm	68.91		96.67	
	Yield (Bu/Acre)	84.52		20.69	
		- - - - - - - - - $/Acre - - - - - - - - -			
	Total Value	100.75		126.38	
	Crop Insurance Receipts	4.81		13.96	
	Miscellaneous Receipts	3.45		4.48	
	Total Receipts	109.01	1.29/Bu	144.81	7.00/Bu
B.	OPERATING COSTS				
	Fertilizer	20.14		16.51	
	Chemicals	4.31		9.92	
	Seed Purchased	1.62		9.31	
	Home-Grown Seed	4.24		0	
	Custom Work Hired	2.44		0	
	Crop and Hail Insurance	2.00		1.77	
	Cash Rent and Crop Share			17.53	
	Machinery Operating Costs	17.76		14.99	
	Miscellaneous Equipment			0	
	Building Repairs	1.09		.12	
	Interest on Operating Capital	4.75		1.77	
	Utilities	2.23		.65	
	Other Insurance	0.73		1.11	
	Property Taxes	2.96		3.17	
	Accounting and Legal Fees	1.22		.51	
	Other	1.81			
	Hired Labour	5.34		2.16	
	Tools Purchased	0.63		.38	
	Depreciation	19.99		18.26	
	Total Operating Costs	93.27	1.10/Bu	98.13	4.74/Bu
C.	PRODUCTION COSTS				
	Operating Costs	93.27		98.13	
	Interest on Equity - Owned Land	37.23		24.98	
	Interest on Equity - Improvements	2.53		2.43	
	Interest on Equity - Machinery	9.09		9.89	
	Interest on Equity - Supplies	0.23		.01	
	Long Term Interest Paid	12.56		8.51	
	Unpaid Labour	17.18		7.99	
	Total Production Costs	172.09	2.04/Bu	151.94	
D.	MANAGEMENT FACTORS				
	Return Over Operating Costs	15.74	0.19/Bu	46.68	2.26/Bu
	Return To Management	-63.08	-0.75/Bu	-7.13	-0.34/Bu
	Land Investment	663.45		634.66	
	Building and Machinery Investment	201.97		188.87	
	Labour (Hours Per Acre)	3.70		1.49	

TABLE 10: SUMMARY OF COSTS AND RETURNS FOR SUMMERFALLOW - 1982

A.	INCOME	
	Number of Farms	21
	Acreage Per Farm	211.75
	Yield (Bu/Acre)	
		- - $/Acre - -
	Total Value	
	Crop Insurance Receipts	
	Miscellaneous Receipts	2.02
	Total Receipts	2.02
B.	OPERATING COSTS	
	Fertilizer	
	Chemicals	
	Seed Purchased	
	Home-Grown Seed	
	Custom Work Hired	0.60
	Crop and Hail Insurance	
	Cash Rent and Crop Share	0.14
	Machinery Operating Costs	11.58
	Miscellaneous Equipment	0.40
	Building Repairs	0.48
	Interest on Operating Capital	0.85
	Utilities	1.81
	Other Insurance	0.62
	Property Taxes	2.67
	Accounting and Legal Fees	0.53
	Other	0.34
	Hired Labour	2.44
	Tools Purchased	0.53
	Depreciation	13.15
	Total Operating Costs	35.95
C.	PRODUCTION COSTS	
	Operating Costs	35.95
	Interest on Equity - Owned Land	37.01
	Interest on Equity - Improvements	1.74
	Interest on Equity - Machinery	6.82
	Interest on Equity - Supplies	0.28
	Long Term Interest Paid	8.01
	Unpaid Labour	13.80
	Total Production Costs	103.62
D.	MANAGEMENT FACTORS	
	Return Over Operating Costs	-33.93
	Return To Management	-101.60
	Land Investment	571.77
	Building and Machinery Investment	136.56
	Labour (Hours Per Acre)	2.22

TABLE 11: SUMMARY OF COSTS AND RETURNS FOR FORAGE PRODUCTION - 1982

		GREENFEED		SILAGE	
A.	INCOME				
	Number of Farms	13		12	
	Acreage Per Farm	105.42		122.25	
	Yield (Tons/Acre)	1.58		4.57	
		- - - - - - - -	$/Acre	- - - - - - - -	
	Total Value	70.57		119.77	
	Crop Insurance Receipts	3.56			
	Miscellaneous Receipts	4.52		8.23	
	Total Receipts	78.65	49.64/Ton	128.00	28.03/Ton
B.	OPERATING COSTS				
	Fertilizer	6.52		16.12	
	Chemicals	1.49		1.86	
	Seed Purchased	3.80		2.41	
	Home-Grown Seed	1.73		2.00	
	Custom Work Hired	0.74		2.94	
	Crop and Hail Insurance	0.09		1.12	
	Cash Rent and Crop Share	0.71		2.65	
	Machinery Operating Costs	15.20		15.73	
	Miscellaneous Equipment				
	Building Repairs	0.84		0.50	
	Interest on Operating Capital	3.44		3.52	
	Utilities	1.51		0.90	
	Other Insurance	0.58		1.22	
	Property Taxes	1.98		3.45	
	Accounting and Legal Fees	0.24		0.98	
	Other	1.53		1.58	
	Hired Labour	1.93		3.13	
	Tools Purchased	0.25		0.29	
	Depreciation	13.82		12.97	
	Total Operating Costs	56.39	35.60/Ton	73.37	16.07/Ton
C.	PRODUCTION COSTS				
	Operating Costs	56.39		73.37	
	Interest on Equity - Owned Land	33.22		33.57	
	Interest on Equity - Improvements	1.73		1.46	
	Interest on Equity - Machinery	6.02		6.55	
	Interest on Equity - Supplies	0.05		0.03	
	Long Term Interest Paid	19.93		34.49	
	Unpaid Labour	19.01		14.23	
	Total Production Costs	136.35	86.07/Ton	163.71	35.85/Ton
D.	MANAGEMENT FACTORS				
	Return Over Operating Costs	22.25	14.05/Ton	54.63	11.96/Ton
	Return To Management	-57.70	-36.42/Ton	-35.71	-7.81/Ton
	Land Investment	584.83		760.64	
	Building and Machinery Investment	136.76		169.65	
	Labour (Hours Per Acre)	3.56		2.74	

TABLE 12: SUMMARY OF COSTS AND RETURNS FOR HAY PRODUCTION - 1982

A.	INCOME		
	Number of Farms	29	
	Acreage Per Farm	85.90	
	Yield (Ton/Acre)	1.36	
		- - $/Acre - -	
	Total Value	72.44	
	Crop Insurance Receipts		
	Miscellaneous Receipts	4.32	
	Total Receipts	76.76	56.44/Ton
B.	OPERATING COSTS		
	Fertilizer	8.37	
	Chemicals	1.53	
	Seed Purchased	1.00	
	Home-Grown Seed		
	Custom Work Hired	5.21	
	Crop and Hail Insurance	0.14	
	Cash Rent and Crop Share	1.45	
	Machinery Operating Costs	14.11	
	Miscellaneous Equipment		
	Building Repairs	0.76	
	Interest on Operating Capital	3.88	
	Utilities	1.23	
	Other Insurance	0.67	
	Property Taxes	2.46	
	Accounting and Legal Fees	1.03	
	Other	1.67	
	Hired Labour	2.08	
	Tools Purchased	0.50	
	Depreciation	13.99	
	Total Operating Costs	60.07	44.12/Ton
C.	PRODUCTION COSTS		
	Operating Costs	60.07	
	Interest on Equity - Owned Land	31.21	
	Interest on Equity - Improvements	2.03	
	Interest on Equity - Machinery	6.57	
	Interest on Equity - Supplies	0.04	
	Long Term Interest Paid	14.48	
	Unpaid Labour	15.63	
	Total Production Costs	130.03	95.50/Ton
D.	MANAGEMENT FACTORS		
	Return Over Operating Costs	16.69	12.26/Ton
	Return To Management	-53.27	-39.13/Ton
	Land Investment	577.11	
	Building and Machinery Investment	153.84	
	Labour (Hours Per Acre)	2.87	

E
TABLE 10:

SECTION III

SUMMARY OF COSTS AND RETURNS - LIVESTOCK

The latest census indicates that the second largest source of income for farms in the Vermilion Region was from the sale of cattle. Livestock production on mixed farms is complementary in nature with grain production. That is, livestock feed requirements such as hay and grain, aftermath pasture, and marginal grazing are provided by the grain enterprise which otherwise may not be marketable. This section provides detailed information on the costs and returns for the average livestock enterprise analyzed in the Vermilion Region.

The data provided in Tables 14-18 are arranged in six sections. Section A provides information that is related to livestock receipts. Size of the basic herd is indicated only for those enterprises which had breeding stock. Also shown is the number of head sold which is used as the divisor in reporting the costs and returns data on a per head basis. Inventory adjustment which may be positive or negative is used to reflect the change in value of the livestock on the farm from the beginning to the end of the twelve month study period.

Section B lists the various categories of operating costs. Equipment expenses include the repairs and fuel that were allocated to the livestock enterprises. Repairs and maintenance costs of livestock facilities and wells are indicated on a per head sold basis. These figures were taken from the year-end statement and allocated to the farming enterprises. Hired labour costs represent the actual amount of cash that was spent for full-time and part-time help. Livestock that was transferred in from another livestock enterprise rather than purchased for cash was valued at fair market value. Home-grown feed was separated from purchased feed and was also valued at fair market value. Interest on operating capital was based on the allocation of operating interest actually paid during the twelve month period. Depreciation of fixed assets are also included in the operating cost section.

Section C completes the production cost section by accounting for overhead costs and unpaid labour. Interest on operator's equity was determined using the market value for the different investment items and applying an interest rate of 7 per cent. Long term interest paid on loans and a valuation of unpaid family labour complete the production cost section.

Section D attempts to evaluate the overall performance of the livestock operation. Of critical inportance is the return over operating costs and is usually the figure that is referred to when choosing among different farming enterprises. Costs which are not included under the heading of operating cost section may be considered as farm overhead and may not always be taken into account when making decisions. As well, total labour as used by a specific enterprise is indicated in this section and is useful from a management point of view.

Of interest to most producers is the total investment. Such information is shown in Section E. Included in investment were land (building and feeding site), breeding herd, equipment and buildings and improvements. Pasture land was not allocated to the livestock enterprise. Instead, all land used for grazing purposes was converted to an animal unit month (A.U.M.) basis and a fair market value per A.U.M. was applied for each specific type of grazing to arrive at a cost.

Many of the livestock producers on study in 1979 had requested that due to the importance of feed costs in livestock operations they wanted to compare their feed inputs and costs to the group average. Section F provides in detail the feeding inputs on a total quantity, total cost, and cost per head sold basis. Home-grown feed costs were separated from purchased feed costs and are shown in Section B under Operating Costs.

Due to the limited number of cattle producers participating in this analysis (30 in number), the reader is advised to exercise some judgement when attempting to interpret the costs and returns data presented. The four main types of cattle enterprises examined were: cow-calf (9 reports), cow-calf yearling (5 reports), cow-calf finishing (12 reports), and cattle feeding (4 reports). For each type of cattle operation parti-

cipants were asked to indicate the number of cows exposed to breeding, the number of calves weaned and their average weight.

Table 13 provides a summary of the costs and returns for the four types of cattle enterprises studied in the Vermilion Region. For the 26 farms having a basic herd an average of 68 cows was reported. Percentage of calves weaned ranged from 70 per cent to 100 per cent with the average being 88 per cent. Weight of weaned calves ranged from 425 pounds to 640 pounds with the average at 520 pounds.

Costs and returns data for the average cow-calf, cow-calf yearling, cow-calf finish, and cattle finishing enterprises are presented in Tables 14, 15, 16, and 17, respectively. The gross income per head sold in 1982 ranged from $453.81 for the average cow-calf enterprise to $793.54 for the average cattle finishing enterprise. Cash cost per head sold ranged from $233.27 for the cow-calf yearling operation to $704.59 for the cattle finishing enterprise. Return over cash cost ranged from $88.95 per head sold for the cattle finishing enterprise to a high of $289.88 for the cow-calf finish operation.

Operating cost ranged from $490.33 per head sold for the cow-calf yearling enterprise to $846.95 per head sold for the cattle finishing enterprise. Cash cost plus the value of home-grown feed and an allowance for depreciation equal total operating cost. None of the cattle enterprises surveyed in 1982 had sufficient income to cover their total operating costs. Return over operating cost ranged from -$31.47 for the cow-calf yearling operation to -$157.01 for the cow-calf operation on a per head sold basis. An observation that can be made from this analysis is that the returns realized by cattle producers in 1983 did not justify the market value that was attached to home-grown feed.

Feed cost still remains to be the major operating cost in livestock operations. For example, the cow-calf operation had an operating cost of $610.83 per head sold. Of this, $345.48 or 56.6 per cent was attributed to feed. Total production costs on a per head sold basis in 1982 ranged from $774.79 for the average cow-calf operation to $999.62 for the average cow-calf finish operation. Operating costs plus the opportunity cost on investment, long term interest paid and unpaid labour equal total production cost. The difference between gross income and total produc-

tion costs equals return to management or profit. Returns to management in 1982 ranged from -$193.86 for the cattle finishing operation to -$367.49 for the cow-calf finish operation on a per head sold basis. Labour hours per head sold averaged 15.27, 17.66, 17.89, and 9.38 for the cow-calf, cow-calf yearling, cow-calf finish, and cattle finishing groups, respectively.

Presented in Table 18 are the costs and returns for farrow finish enterprises studied in the Vermilion region. A total of 11 hog enterprises participated, of which 10 had breeding stocks and physical data as to the number of farrowings and piglets weaned. Eight (8) of the 11 hog enterprises were farrow to finish. The remaining enterprises were farrow to wean (2) and hog finishing (1) and because of their small number group averages were not determined. Overall, piglets weaned per sow ranged from 12.4 to 21.3 per year (based on 2 litters per sow), with the average being 14.3. The number of sows on the average farm was 66 with the range being between 3 and 170 sows per farm.

Unlike the cattle operations, the average farrow to finish operation showed a positive return to management (profit) of $5.18 per hog sold. Alternatively put, total production costs were $143.43 while total returns were $148.62 per head sold. Approximately 58.7 per cent of the operating costs represented feed, 80 per cent of which was purchased rather than home-grown. On the average, 14.3 pigs were sold per sow for farrow-finish operations. Labour requirements per hog sold averaged 2.99 hours. Approximately 879 market hogs were sold by the average farrow-finish operation resulting in a return over operating costs of $28,906.03 or $32.89 per hog sold. This amount represents the operator's return to labour, management, and investment. If only cash costs are considered (operating costs less home-grown feed and depreciation), farrow-finish operators in 1982 had a return over cash costs of $52.96 per hog.

TABLE 13: SUMMARY OF COSTS AND RETURNS FOR CATTLE ENTERPRISES SURVEYED IN THE VERMILION REGION - 1982

		COW-CALF	COW-CALF YEARLING	COW-CALF FINISH	CATTLE FINISHING
A.	INCOME				
	Number of Farms	9	5	12	4
	Average Herd Size	74.56	62.0	67.0	-
	Number of Head Sold	75.44	55.8	68.83	43.25
	Average Weight Per Head Sold	530	680	926	803
		- - - - -	$ Per Head Sold	- - - - -	
	Livestock Sales	451.70	415.50	631.37	579.28
	Inventory Adjustment	-8.79	43.37	-10.71	214.27
	Miscellaneous Receipts	10.90	0	11.47	0
	Gross Income	453.81	458.87	632.12	793.54
B.	PRODUCTION COSTS				
	Purchased Feed	34.55	41.37	73.85	31.47
	Building, Fence Repairs	20.05	11.78	16.22	13.59
	Livestock Purchases	130.43	131.99	72.55	528.27
	Vet. and Medicine	6.42	8.05	19.33	13.38
	Hired Labour	14.28	0.57	23.72	20.39
	Operating Capital Interest Pd.	12.59	0.00	21.78	11.29
	Miscellaneous	48.20	39.51	114.79	86.20
	TOTAL CASH COST	266.52	233.27	342.24	704.59
	Home-Grown Feed	310.93	205.38	343.18	86.14
	Depreciation	33.38	51.68	55.05	56.22
	TOTAL OPERATING COST	610.83	490.33	740.47	846.95
	Interest on Equity	54.71	130.77	117.04	47.59
	Long Term Interest Pd.	25.08	63.76	41.88	48.75
	Unpaid Labour	84.17	135.02	100.23	44.11
	TOTAL PRODUCTION COST	774.79	819.87	999.62	987.40
C.	Return Over Cash Cost	187.29	225.60	289.88	88.95
	Return Over Operating Cost	-157.01	-31.47	-108.35	-53.41
	Return To Management	-320.98	-361.01	-367.49	-193.86
	Labour Hours Per Head Sold	15.27	17.66	17.89	9.38

TABLE 14: SUMMARY OF COSTS AND RETURNS FOR COW-CALF ENTERPRISES - 1982
VERMILION REGION

		Group Average	Your Farm
A.	INCOME		
	Number of Farms	9	
	Herd Size (Head)	74.56	
	Number of Head Sold	75.44	
	Total Weight Produced (Cwt.)	308.42	
	Total Weight Sold (Cwt.)	319.05	
		- - - - - - - - $ Per Head Sold - - - - - -	
	Livestock Sales	451.70	
	Inventory Adjustment	-8.79	
	Miscellaneous Receipts	10.90	
	GROSS INCOME	453.81	
B.	OPERATING COSTS		
	Equipment - Fuel and Repairs	22.29	
	Miscellaneous Tools	0.11	
	Building Repairs	5.63	
	Fence and Well Repairs	14.42	
	Operating Capital Interest Pd.	12.59	
	Utilities	10.51	
	Insurance and Licenses	3.45	
	Property Taxes	1.16	
	Accounting and Legal	1.40	
	Hired Labour	14.28	
	Livestock Purchases	130.43	
	Vet. and Medicine	6.42	
	Custom Work Hired	4.45	
	Transporting and Marketing	1.22	
	Bedding and Supplies		
	Heating Fuel	1.26	
	Other	2.34	
	Home-Grown Feed	310.93	
	Purchased Feed	34.55	
	Depreciation - Improvements	10.35	
	Depreciation - Machinery	23.03	
	TOTAL OPERATING COST	610.83	
C.	PRODUCTION COSTS		
	Operating Costs	610.83	
	Int. on Equity - Land, Livestock	34.91	
	Int. on Equity - Improvements	12.97	
	Int. on Equity - Machinery & Supplies	6.83	
	Interest on Long Term Debt	25.08	
	Operator's Labour	67.04	
	Family Labour	17.13	
	TOTAL PRODUCTION COST	774.79	
D.	MANAGEMENT FACTORS		
	Return Over Operating Cost	-157.01	
	Return To Management	-320.98	
	LABOUR USED (HOURS)	15.27	

TABLE 14 (cont'd)

	Group Average			
			Investment Per Head Sold ($)	Your Farm
E. INVESTMENT ITEMS				
Livestock and Supply Inventory			1,019.34	
Equipment			135.94	
Buildings and Improvements			189.18	
Land			31.11	
TOTAL INVESTMENT			1,375.57	
	Total Quantity Fed	Total Cost ($)	Cost Per Head Sold ($)	
F. HOME-GROWN FEED				
Wheat (Bushels)				
Oats (Bushels)	1,359.00	1,504.90	19.95	
Barley (Bushels)	770.00	1,463.00	19.39	
Other Grain	26.67	100.00	1.33	
Tame Hay (Tons)	113.44	6,234.44	82.64	
Native Hay (Tons)				
Silage (Tons)	231.11	5,777.78	76.58	
Greenfeed (Tons)	78.33	3,474.44	46.05	
Straw (Tons)	94.89	1,897.78	25.15	
Native Pasture (Aums)	44.56	311.89	4.13	
Tame Pasture (Aums)	206.67	1,860.00	24.65	
Aftermath Pasture (Aums)	116.67	833.78	11.05	
TOTAL COST OF HOME-GROWN FEED		23,457.99	310.93	
PURCHASED FEED				
Grain (Cwt.)	294.56	962.56	12.76	
Grain (Cwt.)				
Supplement (Tons)	3.44	528.00	7.00	
Complete Feed (Tons)				
Hay (Tons)	10.78	274.11	3.63	
Silage (Tons)				
Greenfeed (Tons)				
Straw - Feed (Tons)	20.00	400.00	5.30	
Straw - Bedding (Tons)	13.33	2.22	0.03	
Native Pasture (Aums)	54.78	131.33	1.74	
Tame Pasture (Aums)	47.67	230.78	3.06	
Aftermath Pasture (Aums)				
Salt, Molasses, Etc.		77.44	1.03	
TOTAL COST OF PURCHASED FEED		2,606.44	34.55	
TOTAL FEED COSTS		26,064.44	345.48	

TABLE 15: SUMMARY OF COSTS AND RETURNS FOR COW-CALF YEARLING ENTERPRISES - 1982
VERMILION REGION

	Group Average	Your Farm
A. INCOME		
Number of Farms	5	
Herd Size (Head)	62.00	
Number of Head Sold	55.80	
Total Weight Produced (Cwt.)	288.22	
Total Weight Sold (Cwt.)	379.39	
	- - - - - - $ Per Head Sold - - - - - -	
Livestock Sales	415.50	
Inventory Adjustment	43.37	
Miscellaneous Receipts		
GROSS INCOME	458.87	
B. OPERATING COSTS		
Equipment - Fuel and Repairs	17.38	
Miscellaneous Tools	0.70	
Building Repairs	6.51	
Fence and Well Repairs	5.27	
Operating Capital Interest Pd.		
Utilities	9.93	
Insurance and Licenses	1.63	
Property Taxes	4.10	
Accounting and Legal	0.76	
Hired Labour	0.57	
Livestock Purchases	131.99	
Vet. and Medicine	8.05	
Custom Work Hired	0.45	
Transporting and Marketing	0.18	
Bedding and Supplies		
Heating Fuel		
Other	4.37	
Home-Grown Feed	205.38	
Purchased Feed	41.37	
Depreciation - Improvements	12.49	
Depreciation - Machinery	39.19	
TOTAL OPERATING COST	490.33	
C. PRODUCTION COSTS		
Operating Costs	490.33	
Int. on Equity - Land, Livestock	98.46	
Int. on Equity - Improvements	16.35	
Int. on Equity - Machinery & Supplies	15.96	
Interest on Long Term Debt	63.76	
Operator's Labour	120.68	
Family Labour	14.34	
TOTAL PRODUCTION COST	819.87	
D. MANAGEMENT FACTORS		
Return Over Operating Cost	-31.47	
Return To Management	-361.01	
LABOUR USED (HOURS)	17.66	

TABLE 15 (cont'd)

	Group Average			
			Investment Per Head Sold ($)	Your Farm
E. INVESTMENT ITEMS				
Livestock and Supply Inventory			802.63	
Equipment			319.83	
Buildings and Improvements			246.24	
Land			1,118.44	
TOTAL INVESTMENT			2,487.14	
	Total Quantity Fed	Total Cost ($)	Cost Per Head Sold ($)	
F. HOME-GROWN FEED				
Wheat (Bushels)				
Oats (Bushels)	2,040.00	2,244.00	40.22	
Barley (Bushels)	100.00	211.00	3.78	
Other Grain				
Tame Hay (Tons)	70.00	3,915.00	70.16	
Native Hay (Tons)	10.00	353.00	6.33	
Silage (Tons)				
Greenfeed (Tons)	17.80	801.00	14.35	
Straw (Tons)	70.40	1,408.00	25.23	
Native Pasture (Aums)	233.00	1,631.00	29.23	
Tame Pasture (Aums)	74.80	673.20	12.06	
Aftermath Pasture (Aums)	32.00	224.00	4.01	
TOTAL COST OF HOME-GROWN FEED		11,460.20	205.38	
PURCHASED FEED				
Grain (Cwt.)				
Grain (Cwt.)				
Supplement (Tons)	31.00	636.60	11.41	
Complete Feed (Tons)				
Hay (Tons)	12.60	623.00	11.16	
Silage (Tons)				
Greenfeed (Tons)				
Straw - Feed (Tons)				
Straw - Bedding (Tons)	19.20	384.00	6.88	
Native Pasture (Aums)	102.00	334.80	6.00	
Tame Pasture (Aums)				
Aftermath Pasture (Aums)		330.00	5.91	
Salt, Molasses, Etc.				
TOTAL COST OF PURCHASED FEED		2,308.40	41.37	
TOTAL FEED COSTS		13,768.59	246.75	

TABLE 16: SUMMARY OF COSTS AND RETURNS FOR COW-CALF FINISH ENTERPRISES - 1982
VERMILION REGION

	Group Average	Your Farm
A. INCOME		
Number of Farms	12	
Herd Size (Head)	67.00	
Number of Head Sold	68.83	
Total Weight Produced (Cwt.)	599.68	
Total Weight Sold (Cwt.)	637.10	
	- - - - - - - $ Per Head Sold - - - - - -	
Livestock Sales	631.37	
Inventory Adjustment	-10.71	
Miscellaneous Receipts	11.47	
GROSS INCOME	632.12	
B. OPERATING COSTS		
Equipment - Fuel and Repairs	58.14	
Miscellaneous Tools	0.77	
Building Repairs	5.68	
Fence and Well Repairs	10.54	
Operating Capital Interest Pd.	21.78	
Utilities	10.65	
Insurance and Licenses	4.18	
Property Taxes	4.55	
Accounting and Legal	2.61	
Hired Labour	23.72	
Livestock Purchases	72.55	
Vet. and Medicine	19.33	
Custom Work Hired	5.48	
Transporting and Marketing	6.90	
Bedding and Supplies	0.06	
Heating Fuel	1.06	
Other	20.40	
Home-Grown Feed	343.18	
Purchased Feed	73.85	
Depreciation - Improvements	11.49	
Depreciation - Machinery	43.56	
TOTAL OPERATING COSTS	740.47	
C. PRODUCTION COSTS		
Operating Costs	740.47	
Int. on Equity - Land, Livestock	82.79	
Int. on Equity - Improvements	13.95	
Int. on Equity - Machinery & Supplies	20.30	
Interest on Long Term Debt	41.88	
Operator's Labour	93.98	
Family Labour	6.25	
TOTAL PRODUCTION COSTS	999.62	
D. MANAGEMENT FACTORS		
Return Over Operating Costs	-108.35	
Return To Management	-367.49	
LABOUR USED (HOURS)	17.89	

TABLE 16 (cont'd)

	Group Average			
			Investment Per Head Sold ($)	Your Farm
E. INVESTMENT ITEMS				
Livestock and Supply Inventory			1,384.74	
Equipment			400.62	
Buildings and Improvements			212.06	
Land			123.47	
TOTAL INVESTMENT			2,120.89	
	Total Quantity Fed	Total Cost ($)	Cost Per Head Sold ($)	
F. HOME-GROWN FEED				
Wheat (Bushels)				
Oats (Bushels)	2,377.50	2,663.17	38.69	
Barley (Bushels)	1,732.33	3,545.01	51.50	
Other Grain	223.75	373.12	5.42	
Tame Hay (Tons)	92.58	5,059.16	73.50	
Native Hay (Tons)	11.50	505.00	7.34	
Silage (Tons)	132.92	3,738.75	54.32	
Greenfeed (Tons)	51.67	2,325.00	33.78	
Straw (Tons)	119.00	2,397.50	34.83	
Native Pasture (Aums)	125.17	876.17	12.73	
Tame Pasture (Aums)	178.50	1,606.50	23.34	
Aftermath Pasture (Aums)	76.17	533.17	7.75	
TOTAL COST OF HOME-GROWN FEED		23,622.53	343.18	
PURCHASED FEED				
Grain (Cwt.)	10.33	46.67	0.68	
Grain (Cwt.)				
Supplement (Tons)	75.92	1,434.08	20.83	
Complete Feed (Tons)		1,303.83	18.94	
Hay (Tons)	21.92	1,176.42	17.09	
Silage (Tons)				
Greenfeed (Tons)				
Straw - Feed (Tons)				
Straw - Bedding (Tons)				
Native Pasture (Aums)	76.58	365.92	5.32	
Tame Pasture (Aums)	12.08	85.00	1.23	
Aftermath Pasture (Aums)				
Salt, Molasses, Etc.		671.42	9.75	
TOTAL COST OF PURCHASED FEED		5,083.33	73.85	
TOTAL FEED COSTS		28,705.86	417.03	

TABLE 17: SUMMARY OF COSTS AND RETURNS FOR CATTLE FINISHING ENTERPRISES - 1982
VERMILION REGION

		Group Average	Your Farm
A.	INCOME		
	Number of Farms	4	
	Herd Size (Head)		
	Number of Head Sold	43.25	
	Total Weight Produced (Cwt.)	112.16	
	Total Weight Sold (Cwt.)	347.41	
		- - - - - - - $ Per Head Sold - - - - -	
	Livestock Sales	579.28	
	Inventory Adjustment	214.27	
	Miscellaneous Receipts		
	GROSS INCOME	793.54	
B.	OPERATING COSTS		
	Equipment - Fuel and Repairs	55.27	
	Miscellaneous Tools	1.32	
	Building Repairs	11.20	
	Fence and Well Repairs	2.39	
	Operating Capital Interest Pd.	11.29	
	Utilities	6.65	
	Insurance and Licenses	2.97	
	Property Taxes	0.49	
	Accounting and Legal	3.53	
	Hired Labour	20.39	
	Livestock Purchases	528.27	
	Vet. and Medicine	13.38	
	Custom Work Hired	9.00	
	Transporting and Marketing		
	Bedding and Supplies	5.78	
	Heating Fuel	1.20	
	Other		
	Home-Grown Feed	86.14	
	Purchased Feed	31.47	
	Depreciation - Improvements	17.23	
	Depreciation - Machinery	38.99	
	TOTAL OPERATING COST	846.95	
C.	PRODUCTION COSTS		
	Operating Costs	846.95	
	Int. on Equity - Land, Livestock	12.84	
	Int. on Equity - Improvements	17.60	
	Int. on Equity - Machinery & Supplies	17.15	
	Interest on Long Term Debt	48.75	
	Operator's Labour	44.11	
	Family Labour		
	TOTAL PRODUCTION COST	987.40	
D.	MANAGEMENT FACTORS		
	Return Over Operating Cost	-53.41	
	Return To Management	-193.86	
	LABOUR USED (HOURS)	9.38	

TABLE 17 (cont'd)

	Group Average			
			Investment Per Head Sold ($)	Your Farm
E. INVESTMENT ITEMS				
Livestock and Supply Inventory			351.35	
Equipment			349.57	
Buildings and Improvements			324.54	
Land			57.80	
TOTAL INVESTMENT			1,083.27	
	Total Quantity Fed	Total Cost ($)	Cost Per Head Sold ($)	
F. HOME-GROWN FEED				
Wheat (Bushels)				
Oats (Bushels)	453.75	589.87	13.64	
Barley (Bushels)	507.50	973.00	22.50	
Other Grain				
Tame Hay (Tons)	1.88	103.13	2.38	
Native Hay (Tons)	19.75	1,086.25	25.12	
Silage (Tons)	14.25	384.75	8.90	
Greenfeed (Tons)				
Straw (Tons)	7.00	140.00	3.24	
Native Pasture (Aums)	47.00	356.00	8.24	
Tame Pasture (Aums)	7.50	67.50	1.56	
Aftermath Pasture (Aums)	3.50	24.50	0.57	
TOTAL COST OF HOME-GROWN FEED		3,725.50	86.14	
PURCHASED FEED				
Grain (Cwt.)				
Grain (Cwt.)		75.00	1.73	
Supplement (Tons)	7.50	1,197.00	27.68	
Complete Feed (Tons)				
Hay (Tons)	1.25	66.50	1.54	
Silage (Tons)				
Greenfeed (Tons)				
Straw - Feed (Tons)				
Straw - Bedding (Tons)				
Native Pasture (Aums)				
Tame Pasture (Aums)				
Aftermath Pasture (Aums)				
Salt, Molasses, Etc.		22.50	0.52	
TOTAL COST OF PURCHASED FEED		1,361.00	31.47	
TOTAL FEED COSTS		5,086.50	117.61	

TABLE 18: SUMMARY OF COSTS AND RETURNS FOR FARROW-FINISHING ENTERPRISES - 1982
VERMILION REGION

		Group Average	Your Farm
A.	INCOME		
	Number of Farms	8	
	Herd Size (Head)	61.50	
	Number of Head Sold	878.87	
	Total Weight Produced (Cwt.)	1,892.99	
	Total Weight Sold (Cwt.)	1,736.64	
		- - - - - - $ Per Head Sold - - - - -	
	Livestock Sales	121.81	
	Inventory Adjustment	23.82	
	Miscellaneous Receipts	2.99	
	GROSS INCOME	148.62	
B.	OPERATING COSTS		
	Equipment - Fuel and Repairs	2.86	
	Miscellaneous Tools	0.13	
	Building Repairs	1.41	
	Fence and Well Repairs	0.16	
	Operating Capital Interest Pd.	6.55	
	Utilities	3.51	
	Insurance and Licenses	1.04	
	Property Taxes	0.10	
	Accounting and Legal	0.31	
	Hired Labour	3.19	
	Livestock Purchases	16.67	
	Vet. and Medicine	0.37	
	Custom Work Hired	2.29	
	Transporting and Marketing	0.25	
	Bedding and Supplies	1.43	
	Heating Fuel	0.93	
	Other	0.28	
	Home-Grown Feed	13.71	
	Purchased Feed	54.17	
	Depreciation - Improvements	4.50	
	Depreciation - Machinery	1.86	
	TOTAL OPERATING COST	115.73	
C.	PRODUCTION COSTS		
	Operating Costs	115.73	
	Int. on Equity - Land, Livestock	3.48	
	Int. on Equity - Improvements	2.97	
	Int. on Equity - Machinery & Supplies	0.79	
	Interest on Long Term Debt	4.57	
	Operator's Labour	13.35	
	Family Labour	2.54	
	TOTAL PRODUCTION COST	143.43	
D.	MANAGEMENT FACTORS		
	Return Over Operating Cost	32.89	
	Return To Management	5.18	
	LABOUR USED (HOURS)	2.99	

TABLE 18 (cont'd)

	Group Average			
			Investment Per Head Sold ($)	Your Farm
E. INVESTMENT ITEMS				
Livestock and Supply Inventory			58.41	
Equipment			16.63	
Buildings and Improvements			119.52	
Land			2.84	
TOTAL INVESTMENT			197.41	
	Total Quantity Fed	Total Cost ($)	Cost Per Head Sold ($)	
F. HOME-GROWN FEED				
Wheat (Bushels)	165.75	757.44	0.86	
Oats (Bushels)	125.00	137.50	0.16	
Barley (Bushels)	5,609.37	11,157.80	12.70	
Other Grain				
Tame Hay (Tons)				
Native Hay (Tons)				
Silage (Tons)				
Greenfeed (Tons)				
Straw (Tons)				
Native Pasture (Aums)				
Tame Pasture (Aums)				
Aftermath Pasture (Aums)				
TOTAL COST OF HOME-GROWN FEED		12,052.73	13.71	
PURCHASED FEED				
Grain (Cwt.)	250.00	886.50	1.01	
Grain (Cwt.)	248.25	1,238.37	1.41	
Supplement (Tons)	264.50	6,903.00	7.85	
Complete Feed (Tons)	2,489.00	38,500.25	43.81	
Hay (Tons)				
Silage (Tons)				
Greenfeed (Tons)				
Straw - Feed (Tons)	2.50	50.00	0.06	
Straw - Bedding (Tons)				
Native Pasture (Aums)				
Tame Pasture (Aums)				
Aftermath Pasture (Aums)				
Salt, Molasses, Etc.		30.00	0.03	
TOTAL COST OF PURCHASED FEED		47,608.12	54.17	
TOTAL FEED COSTS		59,660.84	67.88	

SECTION IV

SUMMARY OF COSTS AND RETURNS - MILK PRODUCTION

This section provides detailed information on the average costs and returns for fluid milk production in the Vermilion region. A total of 4 records relating to the 1982 production year was obtained from dairy farms in the Vermilion Region. The number of cows per farm ranged from 26 to 100 with the average being 68. Altogether, a total of 273 milking cows was considered. To facilitate easy interpretation, all of the data presented in this Section are weighted on the basis of herd size.

One of the main efficiency measures used in comparing the performance of dairy herds is that of milk production. In 1982, the annual milk production as reported by study participants ranged from 44.74 hectolitres per cow to 65.93 hectolitres per cow. When expressed on a group basis, average milk production was 56.66 hectolitres per cow, an amount that was 1.9 per cent higher when compared to the average of 55.56 hectolitres per cow reported by the milk producers involved in the 1982 Provincial Fluid Milk Study (Refer to report "Economics of Milk Production in Alberta - 1982 Agdex no. 821).

Like milk production, another efficiency measure used is that of feed cost per hectolitre of milk produced. Feed costs per hectolitre of milk in 1982 for the Vermilion Region was $15.59 as compared to the provincial average of $14.34.

As is evident from Table 19, the data is divided into six sections. Section A provides detailed information relating to milk and livestock sales. Net livestock sales may be defined as the dollar difference between cattle bought and sold and represent an amount that can be either positive or negative. Inventory adjustment is used to indicate any change(s) in the value of livestock from the beginning to the end of the twelve month study period. Receipts from milk sales and subsidy were $40.92 per hectolitre while receipts from livestock sales and inventory adjustment were $4.36 per hectolitre. This compares with the 1982 provincial average return of $43.08 per hectolitre for milk sales, and $2.50 per hectolitre for livestock sales and inventory adjustment.

Section B lists the various items comprising operating costs. Equipment expenses include fuel and repairs that were allocated to the milking enterprise. Repairs and maintenance of livestock facilities and wells are indicated on a per hectolitre of milk basis. Hired labour represents the amount of cash that was spent for full-time and part-time help. Home-grown feed valued at fair market value accounted for 56.3 per cent of the total feed cost. Interest on operating capital was based on the allocation of operating interest paid for the twelve month period. Depreciation of fixed assets is included in the operating cost. Operating cost per hectolitre of milk in 1982 was $30.42, of which $15.59 or 51.3 per cent was feed.

Section C completes the production cost section by accounting for overhead costs and unpaid labour. Interest on equity was calculated using the market value for all investment items and applying a desired rate of return as indicated by the participant. The interest rate used in the calculation of opportunity costs was 7 per cent. Also included in this section are the long term interest paid on loans for fixed assets as well as unpaid family labour. Total interest cost in 1982 amounted to $8.03 per hectolitre while the value of unpaid labour was $6.57 per hectolitre. As a result, total production costs in 1982 were $46.01 per hectolitre compared to the 1982 provincial cost of $38.71 per hectolitre.

Section D provides an evaluation of the fluid milk enterprise. Of great significance is the return over operating cost which is usually the figure that is referred to when choosing among different farming alternatives. Costs which are not included in the operating cost section may be considered as general farm overhead and may not always be taken into account in decision making. Return over operating costs for milk production was $14.85 per hectolitre while total returns were insufficient by $0.74 per hectolitre of covering all production costs. Total labour hours per cow is also shown in this section. As the study results have indicated the average labour requirement per milk cow in 1982 was 52.23 hours versus 88.0 hours per cow reported by the dairy producers involved in the Provincial Fluid Milk study. As to the significance of hired labour, 12.5 per cent of the total labour cost was hired as opposed to the provincial average of 23.6 per cent.

Total investment as used by the fluid milk enterprise is indicated in Section E. Investment per cow in 1982 (includes the cow herd, buildings, building site, and equipment) was $5,791.75. The calculated rate of return on investment in 1982 was 8.10 per cent.

Section F provides in detail the feed inputs by total quantity, total cost, and cost per head sold. This kind of information is most useful to livestock and fluid milk producers who are interested in comparing their feed inputs and costs to those of the group.

TABLE 19: SUMMARY OF COSTS AND RETURNS FOR FLUID MILK PRODUCTION - 1982
VERMILION REGION

		Group Average	Your Farm
A.	INCOME		
	Number of Farms	4	
	Number of Cows	68.25	
	Milk Production (Hl/Cow)	56.66	
		$/Hl	
	Milk Sales	37.84	
	Subsidy	3.08	
	Net Livestock Sales	3.08	
	Inventory Adjustment	1.28	
	GROSS INCOME	45.27	
B.	OPERATING COSTS		
	Equipment - Fuel and Repairs	1.54	
	Miscellaneous Tools	0.01	
	Building Repairs	0.74	
	Fence and Well Repairs	0.03	
	Operating Capital Interest Pd.	0.06	
	Utilities	1.18	
	Insurance and Licenses	0.51	
	Property Taxes		
	Accounting and Legal	0.14	
	Hired Labour	0.94	
	Vet. and Medicine	0.75	
	Custom Work Hired	0.71	
	Transporting and Marketing	3.42	
	Bedding and Supplies	0.06	
	Other	0.96	
	Home-Grown Feed	8.78	
	Purchased Feed	6.81	
	Depreciation - Improvements	2.67	
	Depreciation - Machinery	1.10	
	TOTAL OPERATING COST	30.42	
C.	PRODUCTION COSTS		
	Operating Costs	30.42	
	Int. on Equity - Land, Livestock	1.93	
	Int. on Equity - Improvements	2.21	
	Int. on Equity - Machinery & Supplies	0.64	
	Interest on Long Term Debt	4.25	
	Operator's Labour	3.91	
	Family Labour	2.66	
	TOTAL PRODUCTION COST	46.01	
D.	MANAGEMENT FACTORS		
	Return Over Operating Cost	14.85	
	Return To Management	-0.74	
	LABOUR USED (HOURS)	0.92	

TABLE 19 (cont'd)

	Group Average			
			Investment Per Hl Sold ($)	Your Farm
E. INVESTMENT ITEMS				
Livestock and Supply Inventory			42.50	
Equipment			9.11	
Buildings and Improvements			50.61	
Land				
TOTAL INVESTMENT			102.22	
	Total Quantity Fed	Total Cost ($)	Cost Per Head Sold ($)	
F. HOME-GROWN FEED				
Wheat (Bushels)	25.00	112.50	0.03	
Oats (Bushels)	138.50	152.35	0.04	
Barley (Bushels)	3,572.25	6,787.25	0.76	
Other Grain	3,384.50	6,422.46	1.66	
Tame Hay (Tons)	199.00	9,820.00	2.54	
Native Hay (Tons)				
Silage (Tons)	355.75	9,115.25	2.36	
Greenfeed (Tons)	0.50	22.50	0.01	
Straw (Tons)	42.75	855.00	0.22	
Native Pasture (Aums)	21.00	147.00	0.04	
Tame Pasture (Aums)	57.00	513.00	0.13	
Aftermath Pasture (Aums)				
TOTAL COST OF HOME-GROWN FEED		33,947.30	8.78	
PURCHASED FEED				
Grain (Cwt.)	34.25	111.00	0.03	
Grain (Cwt.)				
Supplement (Tons)	339.30	7,795.00	2.02	
Complete Feed (Tons)	2,970.00	16,291.00	4.21	
Hay (Tons)	31.75	1,746.25	0.45	
Silage (Tons)				
Greenfeed (Tons)				
Straw - Feed (Tons)				
Straw - Bedding (Tons)				
Native Pasture (Aums)				
Tame Pasture (Aums)				
Aftermath Pasture (Aums)				
Salt, Molasses, Etc.		384.25	0.10	
TOTAL COST OF PURCHASED FEED		26,327.50	6.81	
TOTAL FEED COSTS		60,274.78	15.59	

SECTION V

SUMMARY OF COSTS AND RETURNS BY SIZE OF OPERATION

A general characteristic of any production unit is that the unit becomes more efficient as its scale of operation increases. However, beyond a certain size any further expansion results in diseconomies of scale due to the limitations of labour, capital, equipment, etc. Thus, as the size of an operation increases, cost savings can be expected especially in areas such as fixed overhead and operating costs. For example, as a farm increases its acres its fixed machinery ownership costs per acre will decrease. Also, operating cost savings can be achieved through the use of larger equipment, bulk buying and more efficient use of labour and management, all of which results in a higher return to management.

To determine whether the size of operation had any effect on the costs and returns for wheat, barley, and canola study participants were divided into two size groups. The size groups analysed consisted of farms having less than 800 seeded acres and those having 800 seeded acres or more.

Wheat Production Costs By Size Of Operation

Costs and returns for wheat production are shown in Table 20. Farms with less than 800 seeded acres (smaller farms) had a yield advantage over farms with 800 seeded acres and more (larger farms) farms by approximately 1.42 bushels per acre but reported a lower return per acre. To illustrate, smaller farms had an average receipt of $181.53 per acre as compared to $184.16 per acre for the larger farms.

Total operating costs on smaller farms amounted to $99.47 per acre as opposed to $101.34 per acre incurred by larger farms. However, on a per acre basis smaller farms reported higher machinery operating cost ($19.60 versus $15.09) and depreciation ($25.68 versus $20.67 per acre). Larger farms as expected had higher costs for cash rent/crop share

TABLE 20: SUMMARY OF COSTS AND RETURNS FOR WHEAT PRODUCTION BY FARM SIZE - 1982

		LESS THAN 800 ACRES		800 ACRES AND MORE	
A.	INCOME				
	Number of Farms	18		25	
	Acreage Per Farm	116.50		242.60	
	Yield (Bu/Acre)	41.10		39.68	
		- - - - - - - -	$/Acre	- - - - - - - -	
	Total Value	178.49		176.75	
	Crop Insurance Receipts	0.00		0.07	
	Miscellaneous Receipts	3.05		7.34	
	Total Receipts	181.53	4.42/Bu	184.16	4.64/Bu
B.	OPERATING COSTS				
	Fertilizer	15.88		21.31	
	Chemicals	9.99		9.39	
	Seed Purchased	0.57		0.00	
	Home-Grown Seed	7.39		7.58	
	Custom Work Hired	2.44		1.16	
	Crop and Hail Insurance	2.73		2.57	
	Cash Rent and Crop Share	0.77		6.27	
	Machinery Operating Costs	19.60		15.09	
	Miscellaneous Equipment	0.00		0.14	
	Building Repairs	0.45		0.85	
	Interest on Operating Capital	2.47		4.26	
	Utilities	2.09		1.55	
	Other Insurance	0.87		0.62	
	Property Taxes	3.16		2.73	
	Accounting and Legal Fees	0.48		0.77	
	Other	0.30		1.12	
	Hired Labour	3.57		4.66	
	Tools Purchased	1.03		0.62	
	Depreciation	25.68		20.67	
	Total Operating Cost	99.47	2.42/Bu	101.34	2.55/Bu
C.	PRODUCTION COSTS				
	Operating Costs	99.47		101.34	
	Interest on Equity - Owned Land	37.50		30.46	
	Interest on Equity - Improvements	3.68		2.56	
	Interest on Equity - Machinery	10.35		9.22	
	Interest on Equity - Supplies	0.38		0.34	
	Long Term Interest Paid	15.01		14.39	
	Unpaid Labour	24.25		13.66	
	Total Production Cost	190.63	4.64/Bu	171.96	4.33/Bu
D.	MANAGEMENT FACTORS				
	Return Over Operating Cost	82.06	2.00/Bu	82.82	2.09/Bu
	Return To Management	-9.09	-0.22/Bu	12.20	0.31/Bu
	Land Investment	600.02		658.69	
	Building and Machinery Investment	245.03		201.69	
	Labour Hours (Per Acre)	3.85		2.56	

implying a greater proportion of rented land in their operations. Total operating costs on a per bushel basis was $2.42 for the smaller farms and $2.55 for the larger farms. When comparing total production costs, these were found to be higher on the smaller farms at $190.63 per acre versus that of $171.96 per acre for the larger farms. Higher interest costs on land, building, and machinery investment along with higher labour costs accounted for the difference.

Labour hours used per acre was higher on the smaller farms at 3.85 versus 2.56 for the larger farms. Total building, machinery, and land investment for the smaller farms totalled $845.05 per acre as compared to $810.38 per acre reported for the larger farms. Machinery and building investment per acre on smaller farms was $245.03 or 21.5 per cent higher than that reported for the larger farms. Return over operating cost were $2.00 and $2.09 per bushel for the smaller and larger farms, respectively. However, smaller farms were short by $9.09 per acre ($0.22 per bushel) in covering their total production costs on smaller farms while larger farms reported a return to management (profit) of $12.20 per acre or $0.31 per bushel.

Barley Production Costs By Size Of Operation

Presented in Table 21 are the costs and returns for barley production by size of operation. As can be seen from the table, average yield on the smaller farms was down by 6.93 bushels per acre when compared to the larger farms and when coupled with the fact that both size groups reported receiving similar barley prices explains the higher returns observed for the larger farms. That is, return per acre was $125.74 for the larger farms as compared to that of $112.07 realized by the smaller farms.

As was the case with wheat producers, smaller farms experienced lower cash rent/crop share and material costs but higher fuel, repair and depreciation costs. Total operating costs for the larger farms was $98.47 per acre or $1.54 per bushel. For the smaller farms this value was $94.36 per acre or $1.66 per bushel.

TABLE 21: SUMMARY OF COSTS AND RETURNS FOR BARLEY PRODUCTION BY FARM SIZE - 1982

		LESS THAN 800 ACRES		800 ACRES AND MORE	
A.	INCOME				
	Number of Farms	27		26	
	Acreage Per Farm	157.74		350.85	
	Yield (Bu/Acre)	56.80		63.73	
		- - - - - - - -	$/Acre	- - - - - - - -	
	Total Value	107.54		122.28	
	Crop Insurance Receipts	0.83		0.00	
	Miscellaneous Receipts	3.70		3.46	
	Total Receipts	112.07	1.97/Bu	125.74	1.97/Bu
B.	OPERATING COSTS				
	Fertilizer	19.75		23.87	
	Chemicals	7.53		7.93	
	Seed Purchased	1.38		1.05	
	Home-Grown Seed	3.96		4.67	
	Custom Work Hired	2.45		1.63	
	Crop and Hail Insurance	1.78		1.56	
	Cash Rent and Crop Share	1.39		9.23	
	Machinery Operating Costs	20.32		13.98	
	Miscellaneous Equipment	0.00		0.07	
	Building Repairs	0.70		0.93	
	Interest on Operating Capital	2.30		6.46	
	Utilities	2.23		1.27	
	Other Insurance	0.97		0.93	
	Property Taxes	3.09		1.94	
	Accounting and Legal Fees	0.47		0.83	
	Other	0.47		1.87	
	Hired Labour	2.92		4.21	
	Tools Purchased	0.82		0.50	
	Depreciation	21.82		15.51	
	Total Operating Cost	94.36	1.66/Bu	98.47	1.54/Bu
C.	PRODUCTION COSTS				
	Operating Costs	94.36		98.47	
	Interest on Equity - Owned Land	34.51		20.55	
	Interest on Equity - Improvements	2.82		2.05	
	Interest on Equity - Machinery	10.18		6.23	
	Interest on Equity - Supplies	0.43		0.11	
	Long Term Interest Paid	17.89		14.29	
	Unpaid Labour	21.96		10.88	
	Total Production Cost	182.15	3.21/Bu	152.57	2.39/Bu
D.	MANAGEMENT FACTORS				
	Return Over Operating Cost	17.71		27.27	0.43/Bu
	Return To Management	-70.08		-26.83	-0.42/Bu
	Land Investment	692.20		643.84	
	Building and Machinery Investment	222.49		165.19	
	Labour Hours (Per Acre)	3.57		2.16	

Total production costs for barley on smaller farms were approximately 19.4 per cent higher than that for larger farms. Once again the interest costs associated with the higher investment per acre together with higher labour cost accounted for this difference. Production costs for the smaller farms were $182.15 per acre ($3.21 per bushel) and $152.57 per acre ($2.39 per bushel) for the larger farms.

Returns over operating costs were $17.71 per acre and $27.27 per acre for the smaller and larger farms, respectively. However, both size groups failed to generate sufficient returns to cover their total production cost. That is, larger farms were short $26.83 per acre while the smaller farms were short $70.08 per acre.

Canola Production Costs By Size Of Operation

Table 22 shows the costs and returns associated with canola production by size of operation. Canola yields were more or less the same for the smaller and larger farms. Average yield per acre was 26.28 bushels for the smaller farms while larger farms reported 26.20 bushels. Consequently, returns per acre were quite similar at $164.55 and $151.67 for the smaller and larger farms, respectively.

Unlike the larger farms, smaller farms grew all of their canola on owned land and as such did not incur any expense for cash rent/crop share. However, they did report significantly higher costs for depreciation, machine fuel and repairs, and crop insurance. Smaller farms reported a fertilizer and chemical cost of $27.72 per acre compared to $33.85 for the larger farms. Total operating costs for the smaller farms averaged $101.53 per acre or $3.86 per bushel while the larger farms reported operating costs of $107.71 per acre or $4.11 per bushel. As anticipated, the larger farms with the canola enterprise over 3 times larger in size experienced lower costs for depreciation, machine fuel and repairs and cash overhead such as insurance and utilities.

Total production costs on the smaller farms amounted to $202.71 per acre or $7.71 per bushel produced and returns totalling $164.55 per acre were short by $38.16 per acre ($1.45 per bushel), in covering all produc-

TABLE 22: SUMMARY OF COSTS AND RETURNS FOR CANOLA PRODUCTION BY FARM SIZE - 1982

		LESS THAN 800 ACRES		800 ACRES AND MORE	
A.	INCOME				
	Number of Farms	13		23	
	Acreage Per Farm	102.08		318.13	
	Yield (Bu/Acre)	26.28		26.20	
		- - - - - - - - $/Acre - - - - - - - -			
	Total Value	158.36		157.74	
	Crop Insurance Receipts	3.44		1.91	
	Miscellaneous Receipts	2.75		2.02	
	Total Receipts	164.55	6.26/Bu	161.67	6.17/Bu
B.	OPERATING COSTS				
	Fertilizer	15.87		21.08	
	Chemicals	11.85		12.77	
	Seed Purchased	1.75		2.09	
	Home-Grown Seed	1.83		1.47	
	Custom Work Hired	1.97		1.72	
	Crop and Hail Insurance	2.34		1.90	
	Cash Rent and Crop Share	0.00		14.41	
	Machinery Operating Costs	20.83		14.33	
	Miscellaneous Equipment	0.00		0.13	
	Building Repairs	0.78		1.02	
	Interest on Operating Capital	4.13		5.41	
	Utilities	2.74		1.43	
	Other Insurance	0.80		0.82	
	Property Taxes	2.91		2.15	
	Accounting and Legal Fees	0.37		0.91	
	Other	0.07		1.88	
	Hired Labour	2.93		4.52	
	Tools Purchased	1.21		0.50	
	Depreciation	29.14		19.16	
	Total Operating Cost	101.53	3.86/Bu	107.71	4.11/Bu
C.	PRODUCTION COSTS				
	Operating Costs	101.53		107.71	
	Interest on Equity - Owned Land	44.45		21.67	
	Interest on Equity - Improvements	4.15		2.53	
	Interest on Equity - Machinery	11.00		8.17	
	Interest on Equity - Supplies	0.61		0.17	
	Long Term Interest Paid	14.15		13.31	
	Unpaid Labour	26.83		11.06	
	Total Production Cost	202.71	7.71/Bu	164.62	6.28/Bu
D.	MANAGEMENT FACTORS				
	Return Over Operating Cost	63.02	2.40/Bu	53.96	2.06/Bu
	Return To Management	-38.16	-1.45/Bu	-2.96	-0.11/Bu
	Land Investment	763.25		647.86	
	Building and Machinery Investment	268.72		191.27	
	Labour Hours (Per Acre)	4.15		2.16	

tion costs. Investment on these farms amounted to $1,031.97 per acre and had a total labour requirement of 4.15 hours per acre.

For the larger farms, total production costs were $164.62 per acre or $6.28 per bushel and with returns averaging $161.67 per acre were short $2.96 per acre or $0.11 per bushel in covering all their costs. With an investment of $839.13 per acre, these farms had a calculated percentage return to equity of 3.53 per cent. In addition, their labour requirement was 2.16 hours per acre.

SECTION VI

A COMPARISON OF COSTS AND RETURNS BETWEEN BEGINNING AND ESTABLISHED FARMERS

The Production and Resource Economics Branch extended its Regional Farm Enterprise Research Program to include beginning farmers in the Vermilion Region. The objective of which is to compare the performance of beginning farmers with that of established farmers in order to help determine the financial and other requirements needed to establish viable farming operations. Detailed input/output and costs/returns information that describe the relative performance and success of beginning farmers are essential to effect extension work with beginning farmers. Fourteen (14) beginning farmers were interviewed last winter to obtain 1982 cost of production information. Upon completion of analysis of the records obtained, individual and group results were reviewed with each participant.

Costs and returns for wheat, barley, canola, and oats for established and beginning farmers are presented in Table 23 to 26, inclusive. Referring to Table 23, beginning farmers reported an average wheat yield of 36.39 bushels per acre, an amount that was 9.9 per cent less than that experienced by the established farmers. Their total return per acre was $159.72 compared to $185.57 for the established farms. On a per acre basis, operating costs were much higher for the established farmers at $104.52 compared to $72.31 for the beginning farmers. Especially significant were the costs of crop share/cash rent, fertilizer and chemicals, machine operation and depreciation incurred by established farmers. As the table shows, cash rent/crop share for established farms was $5.34 per acre compared to $0.21 per acre for beginning farms suggesting that established farmers cash rented/crop shared a larger portion of their acreage. The average fertilizer and chemical cost was $29.98 per acre for established farmers as compared to $24.46 for beginning farmers. Machinery investment per acre was lower for beginning farmers, impling the use of smaller and perhaps older equipment in their farming operation and accounts for the higher labour costs and lower depreciation. As

observed equity on land, machinery, and building investment was higher for established farms and is indicative of the opportunity cost of $45.80 per acre. For the beginning farmers their opportunity cost was $40.88 per acre. Interest paid on long term debt was only 2 per cent higher for beginning farmers at $14.74 per acre compared to $14.45 per acre for established farmers. Beginning farmers had total production costs of $147.17 per acre and with a return of $157.72 per acre had a profit of $12.55 per acre. Profit was also realized by established farmers but to a smaller degree. Their production cost was $180.95 per acre and with a return of $185.57 per acre resulted in a profit of $4.61 per acre. It is worth mentioning that beginning farmers reported machinery and building investment of $147.12 per acre, an amount that was 33.6 per cent less than that for established farmers. Labour hours were more or less the same at 2.86 hours per acre and 2.91 hours per acre, respectively.

Presented in Table 24 are the costs and returns for barley production for both established and beginning farmers. As can be seen, barley production was 62.45 per acre for established farmers or 4.68 bushels per acre higher than that for beginning farmers. This in terms of total returns translates into $122.40 per acre compared to $117.33 per acre for beginning farmers. Similar to wheat, established farmers incurred higher material, cash rent/crop share, depreciation and hired labour costs. Their operating costs were $102.56 per acre ($1.64 per bushel) compared to that of $73.89 ($1.28 per bushel) reported by beginning farmers. Long term interest paid by beginning farmers amounted to $14.25 acre 8 per cent less than that for the established farmers. Total production cost for beginning farmers was $146.78 acre and with a return of $117.33 per acre was short $29.45 per acre in covering total production cost. For the established farmers an average production cost of $167.71 per acre was reported and with returns of $122.40 per acre were short $45.31 per acre in covering their total production cost.

Shown in Table 25 are the costs and returns data for canola production for both established and beginning farmers. Since the data is limited in scope it should be stressed that the figures given are not a representative and accurate assessment of canola production. As such,

the reader is advised to exercise some caution when attempting to interpret or make use of this information. Average canola yields for the 6 beginning farmers studied was 20.70 bushels per acre as compared to 26.75 bushels per acre for the 30 established farmers. The relatively lower operating cost of $65.68 per acre or $3.17 per bushel for beginning farmers is largely due to lower material, cash rent/crop share, machinery operating, miscellaneous and depreciation costs. Machinery and building investment costs amounted to $140.27 per acre and was below the $209.24 reported by the established farmers. Interest paid on long term debt by beginning farmers averaged $10.40 per acre or 24.3 per cent less than that reported by the established farmers. Total production costs for beginning farmers averaged $139.98 per acre or $6.76 per bushel and with returns averaging $150.93 per acre or $7.29 per bushel, were able to realize a profit of $10.95 per acre or $0.53 per bushel. Despite the high yield of 26.75 bushels per acre obtained by established farmers their total return was insufficient by $10.22 per acre or $0.38 per bushel in covering all their production costs.

With reference to Table 26, oat yield and returns were significantly higher for the established farmers at 84.29 bushels per acre and $108.94 per acre, compared to 76.25 bushels per acre and $90.52 per acre. As was observed the beginning farmers had lower cost per bushel despite their lower yields compared to the established group which had higher yields and higher costs. With operating costs of $77.59 per acre and returns of $90.52 per acre, beginning farmers had a return to their investment and labour of $12.92 per acre. However, when investment costs, long term interest paid and operator labour costs are added to operating cost, these farmers were short $54.71 per acre in covering their total production costs. Total production cost for established farmers amounted to $170.19 per acre and despite higher yields were short $61.25 per bushel in covering all production costs.

In summary, based on the four crops studied beginning farmers can be evaluated as follows:

1. Beginning farmers had lower yields and consequently lower returns relative to established farmers;
2. For all major crops surveyed, beginning farmers had lower operating and total production costs on a per acre basis;

TABLE 23: SUMMARY OF COSTS AND RETURNS FOR WHEAT PRODUCTION - 1982

		ESTABLISHED FARMERS		BEGINNING FARMERS	
A.	INCOME				
	Number of Farms	39		5	
	Acreage Per Farm	189.21		168.60	
		- - - - - - - - $/Acre - - - - - - - -			
	Yield (Bu/Acre)	40.38		36.39	
	Crop Value	178.75		158.41	
	Crop Insurance Receipts	0.06		-	
	Miscellaneous Receipts	6.75		1.30	
	Total Receipts	185.57	4.60/Bu	159.72	4.39/Bu
B.	OPERATING COSTS				
	Fertilizer	20.12		17.92	
	Chemicals	9.86		6.54	
	Seed	7.66		7.98	
	Cash Rent and Crop Share	5.34		0.21	
	Machinery Operating Costs	17.02		10.89	
	Miscellaneous	12.78		10.74	
	Interest on Operating Capital	4.21		1.27	
	Depreciation	22.87		15.18	
	Total Operating Cost	104.52	2.59/Bu	72.31	1.99/Bu
C.	PRODUCTION COSTS				
	Operating Costs	104.52		72.31	
	Interest on Equity - Land	32.65		31.73	
	Interest on Equity - Bldg. Machinery, and supplies	13.15		9.15	
	Long Term Interest Paid	14.45		14.74	
	Unpaid Labour	16.18		19.22	
	Total Production Cost	180.95	4.46/Bu	147.17	4.04/Bu
D.	MANAGEMENT FACTORS				
	Return Over Operating Cost	81.04	2.01/Bu	87.41	2.40/Bu
	Return To Management	4.61	0.11/Bu	12.55	0.34/Bu
	Land Investment	643.43		671.52	
	Building and Machinery Investment	221.44		147.12	
	Supply Inventory	21.06		8.30	
	Labour Hours (Per Acre)	2.91		2.86	

TABLE 24: SUMMARY OF COSTS AND RETURNS FOR BARLEY PRODUCTION - 1982

		ESTABLISHED FARMERS		BEGINNING FARMERS	
A.	INCOME				
	Number of Farms	41		13	
	Acreage Per Farm	275.98		182.00	
		- - - - - - - - $/Acre - - - - - - - -			
	Yield (Bu/Acre)	62.45		57.77	
	Crop Value	119.46		109.76	
	Crop Insurance Receipts	-		1.49	
	Miscellaneous Receipts	2.94		6.08	
	Total Receipts	122.40	1.96/Bu	117.33	2.03/Bu
B.	OPERATING COSTS				
	Fertilizer	22.85		20.15	
	Chemicals	8.31		5.05	
	Seed	5.57		5.75	
	Cash Rent and Crop Share	7.32		3.07	
	Machinery Operating Costs	16.26		15.08	
	Miscellaneous	12.41		10.43	
	Interest on Operating Capital	6.30		0.75	
	Depreciation	19.19		12.94	
	Total Operating Costs	102.56	1.64/Bu	73.89	1.28/Bu
C.	PRODUCTION COSTS				
	Operating Costs	102.56		73.89	
	Interest on Equity - Land	26.15		26.27	
	Interest on Equity - Bldg. Machinery and Supplies	10.61		9.32	
	Long Term Interest Paid	15.39		14.25	
	Unpaid Labour	13.00		23.06	
	Total Production Costs	167.71	2.69/Bu	146.78	2.54/Bu
D.	MANAGEMENT FACTORS				
	Return Over Operating Costs	19.85	0.32/Bu	43.44	0.75/Bu
	Return To Management	-45.31	-0.73/Bu	-29.45	-0.51/Bu
	Land Investment	666.90		684.95	
	Building and Machinery Investment	196.01		154.48	
	Supply Inventory	16.05		25.31	
	Labour Hours (Per Acre)	2.48		3.45	

TABLE 25: SUMMARY OF COSTS AND RETURNS FOR CANOLA PRODUCTION - 1982

		ESTABLISHED FARMERS		BEGINNING FARMERS	
A.	INCOME				
	Number of Farms	30		6	
	Acreage Per Farm	262.77		126.83	
		- - - - - - -	$/Acre	- - - - - - -	
	Yield (Bu/Acre)	26.75		20.70	
	Crop Value	160.97		125.39	
	Crop Insurance Receipts	0.00		24.32	
	Miscellaneous Receipts	2.22		1.22	
	Total Receipts	163.19	6.10/Bu	150.93	7.29/Bu
B.	OPERATING COSTS				
	Fertilizer	20.91		13.78	
	Chemicals	13.16		7.17	
	Seed	3.67		2.41	
	Cash Rent and Crop Share	13.14		2.46	
	Machinery Operating Costs	15.52		13.27	
	Hired Labour	4.49		2.08	
	Miscellaneous	12.90		9.07	
	Interest on Operating Capital	5.65		0.76	
	Depreciation	21.28		14.68	
	Total Operating Cost	110.72	4.14/Bu	65.68	3.17/Bu
C.	PRODUCTION COSTS				
	Operating Costs	110.72		65.68	
	Interest on Equity - Land	23.85		38.81	
	Interest on Equity - Bldg. Machinery and Supplies	11.91		8.53	
	Long Term Interest Paid	13.74		10.40	
	Unpaid Labour	13.19		16.56	
	Total Production Cost	173.41	6.48/Bu	139.98	6.76/Bu
D.	MANAGEMENT FACTORS				
	Return Over Operating Cost	52.47	1.96/Bu	85.25	4.12/Bu
	Return To Management	-10.22	-0.38/Bu	10.95	0.53/Bu
	Land Investment	657.06		753.75	
	Building and Machinery Investment	209.24		140.27	
	Supply Inventory	22.16		17.87	
	Labour Hours (Per Acre)	2.45		2.57	

TABLE 26: SUMMARY OF COSTS AND RETURNS FOR OATS PRODUCTION - 1982

		ESTABLISHED FARMERS		BEGINNING FARMERS	
A.	INCOME				
	Number of Farms	19		7	
	Acreage Per Farm	76.42		51.86	
		- - - - - - - -	$/Acre	- - - - - - - -	
	Yield (Bu/Acre)	84.29		76.25	
	Crop Value	100.73		85.81	
	Crop Insurance Receipts	0.00		5.25	
	Miscellaneous Receipts	2.96		4.71	
	Total Receipts	108.94	1.29/Bu	90.52	1.19/Bu
B.	OPERATING COSTS				
	Fertilizer	20.72		16.79	
	Chemicals	4.73		1.45	
	Seed	5.63		6.95	
	Cash Rent and Crop Share	2.52		8.61	
	Machinery Operating Costs	17.96		13.15	
	Miscellaneous	14.70		9.79	
	Interest on Operating Capital	5.21		0.78	
	Depreciation	20.06		18.67	
	Total Operating Cost	97.35	1.15/Bu	77.59	1.02/Bu
C.	PRODUCTION COSTS				
	Operating Costs	97.35		77.59	
	Interest on Equity - Land	35.76		19.52	
	Interest on Equity - Bldg. Machinery and Supplies	11.90		11.24	
	Long Term Interest Paid	11.01		14.34	
	Unpaid Labour	14.17		22.54	
	Total Production Cost	170.19	2.02/Bu	145.23	1.90/Bu
D.	MANAGEMENT FACTORS				
	Return Over Operating Cost	11.59	0.14/Bu	12.92	0.17/Bu
	Return To Management	-61.25	-0.73/Bu	-54.71	-0.72/Bu
	Land Investment	678.88		572.66	
	Building and Machinery Investment	203.76		181.38	
	Supply Inventory	10.40		36.99	
	Labour Hours (Per Acre)	3.12		4.50	

3. Beginning farmers consistently reported lower machinery and building investment per acre resulting in lower depreciation and interest costs;
4. Actual long term interest paid by beginning farmers were less than that paid by the established farmers growing barley and canola;
5. Generally speaking, beginning farmers reported lower cash costs for materials, cash rent/crop share, and hired labour;
6. Although beginning farmers experienced lower yields relative to the established farmers, they realized higher returns to management on a per acre and per bushel basis. This is as a result of the beginning farmer having a significantly lower cost structure.

SECTION VII

A COMPARISON OF COSTS AND RETURNS FOR GRAIN PRODUCTION BY SOIL TYPE

It is generally recognized that costs and returns vary among farms because of differences in weather, input use, management, and soil type. With crop data available for approximately 50 farms an attempt was made to determine the average yields, expected returns and expenditures for crops grown on different types of soil[1].

The Statistics Branch of Alberta Agriculture provided the following yield estimates by soil type for the major crops grown in the Vermilion Region in the 1982 crop year (Table 27).

TABLE 27: YIELD ESTIMATES OF VARIOUS CROPS ON DIFFERENT SOIL TYPES - 1982

	THIN-BLACK	DARK-BROWN	GREY-WOODED
		Bu. Per Acre	
Wheat	33.7	35.3	30.5
Barley	55.0	55.1	48.0
Canola	24.0	28.3	20.0
Oats	66.5	66.9	58.0

Overall, yields for wheat, barley, canola and oats were estimated to be the highest on dark-brown soils within the Vermilion Region. These statistics are quite contrary to the results of this study as the higher valued thin-black soil was found to be more productive with respect to the four main crops.

After consulting with the Regional Economist in the Vermilion Region, it was decided that farms studied from the different areas be classified by soil type in the following manner:

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1 Statistically, the number of farms in each sub-category is insufficient to represent the various farming enterprises in the Vermilion Region. Hence, it is suggested that the data contained in this section be regarded as general information and that no specific conclusions be drawn.

Soil type	Agricultural District
1. Grey-wooded:	Lac La Biche (I.D. #18)
	Bonnyville (M.D. #87)
	St. Paul (County #19)
	Smoky Lake (County #13)
2. Thin-Black:	Lamont (County #30)
	Two Hills (County #21)
	Vermilion River (County #24)
	Minburn (County #27)
	Beaver (County #9)
3. Dark-Brown:	Wainwright (M.D. #61)
	Provost (M.D. #52)

Presented in Table 28 are the costs and returns for wheat production on thin-black, dark-brown, and grey-wooded soils. As can be seen, thin-black soil had a yield advantage of approximately 5 bushels per acre over the dark-brown and grey-wooded soils. This yield advantage resulted in receipts per acre being the highest for wheat grown on thin-black soil. However, due to the relatively higher investment and operating cost structure associated with farming on thin-black soil net returns per acre were the lowest compared to the other two soil types. For example, returns to management was $1.30 per acre compared to $7.25 and $20.71 for wheat, grown on grey-wooded and dark brown soils, respectively.

The production of canola on thin-black and grey-wooded soils can be compared using Table 29. Canola growers on thin-black soil had a 39 per cent yield advantage over growers on grey-wooded soil. As no data for canola production on dark-brown soil was available the cost comparison was limited to the two soil types mentioned above. Material costs were 6.3 per cent higher on thin-black soil at $37.01 per acre as compared to $34.83 per acre for the grey-wooded soil. Machine operating costs and depreciation were also significantly higher on thin-black soil at $38.70 per acre compared to $25.31 per acre for grey-wooded soil. In summary, total operating costs on a per acre basis were 8.8 per cent higher on the

TABLE 28: SUMMARY OF COSTS AND RETURNS FOR WHEAT PRODUCTION BY SOIL TYPE - 1982

		THIN-BLACK		DARK-BROWN		GREY-WOODED	
A.	INCOME						
	Number of Farms	28		8		8	
	Acreage Per Farm	214.64		192.50		84.00	
		- - - - - - - - - - -		$/Acre	- - - - - - - - - - -		
	Yield (Bu/Acre)	41.24		36.68		36.14	
	Crop Value	183.16		165.72		143.68	
	Crop Insurance Receipts			0.29			
	Miscellaneous Receipts	7.40		2.75		3.30	
	Total Receipts	190.56	4.62/Bu	168.76	4.60/Bu	146.97	4.07/Bu
B.	OPERATING COSTS						
	Fertilizer	21.87		13.31		17.28	
	Chemicals	10.25		7.87		6.79	
	Seed	7.79		7.57		7.15	
	Cash Rent and Crop Share	5.82		2.06		2.13	
	Machinery Operating Costs	17.09		13.16		17.48	
	Miscellaneous	12.74		11.82		12.79	
	Interest on Operating Capital	4.52		2.25		2.25	
	Depreciation	24.62		13.83		18.31	
	Total Operating Cost	109.34	2.65/Bu	75.43	2.06/Bu	87.71	2.43/Bu
C.	PRODUCTION COSTS						
	Operating Costs	109.34		75.43		87.71	
	Interest on Equity - Land	33.49		35.46		17.52	
	Interest on Equity - Bldg. Machinery, and supplies	13.95		8.28		12.19	
	Long Term Interest Paid	15.54		12.58		9.37	
	Unpaid Labour	16.94		16.30		12.95	
	Total Production Cost	189.26	4.59/Bu	148.05	4.04/Bu	139.72	3.87/Bu
D.	MANAGEMENT FACTORS						
	Return Over Operating Cost	81.22	1.97/Bu	93.33	2.54/Bu	59.27	1.64/Bu
	Return To Management	1.30	0.03/Bu	20.71	0.56/Bu	7.25	0.20/Bu
	Land Investment	696.39		618.31		262.60	
	Building and Machinery Investment	232.91		139.01		214.52	
	Supply Inventory	16.01		8.63		7.70	
	Labour Hours (Per Acre)	2.97		2.86		2.43	

thin-black soil when compared to the grey-wooded soil. However, when operating costs are expressed on a yield basis, the higher yield on the thin-black soil resulted in a lower cost of $3.90 per bushel versus $4.98 per bushel reported for the grey-wooded soil.

Non-cash costs were significantly higher on the thin-black soil mainly because of higher land values and a higher machinery investment per acre. Total production costs were $182.73 and $123.35 per acre for the thin-black and grey-wooded soils, respectively. Returns were insufficient by $10.70 per acre in covering all costs for the thin-black soil while they exceeded all costs by $2.48 per bushel on the grey-wooded soil. Land, buildings, and machinery investment per acre for the thin-black soil group was $907.07 compared to $694.55 for the grey-wooded soil group.

As mentioned previously, barley was the most extensively grown cereal crop on the farms studied in the Vermilion Region. Costs and yield differences for barley production on the thin-black, dark-brown, and grey-wooded soils are shown in Table 30. Barley yields ranged from 51.92 bushels per acre on the grey-wooded soil to 67.22 bushels on the thin-black soil. The grey-wooded soil group with returns of $103.74 per acre and total production costs of $128.33 per acre was short $24.59 per acre in covering all costs while the thin black soil group with returns of $131.58 per acre and costs of $184.03 suffered a loss of $52.44 per acre. The lowest investment of $704.64 per acre was reported by farms on grey-wooded soil as opposed to an investment of $814.16 on dark-brown soil and $944.86 on thin-black soil.

Other noticeable differences in the cost of barley production by soil type were the relatively higher material, machine operation, hired labour, and interest on investment costs experienced by the group on thin-black soil. These farms had the highest operating cost and total production cost at $104.89 per acre and $184.03 per acre, respectively. The lowest production cost on a per acre basis was reported for the grey-wooded soil at $128.33.

Costs and returns for oats production are presented in Table 31. Similar to that observed for other crops, oats yields were highest on the thin-black soil averaging 92.59 bushels per acre. However, the highest returns per acre were reported by farms on dark-brown soil at $121.83 per acre and was as a result of additional income from crop insurance.

TABLE 29: SUMMARY OF COSTS AND RETURNS FOR CANOLA PRODUCTION BY SOIL TYPE - 1982

		THIN-BLACK		GREY-WOODED	
A.	INCOME				
	Number of Farms	28		7	
	Acreage Per Farm	237.37		285.00	
		- - - - - - - - $/Acre - - - - - - - -			
	Yield (Bu/Acre)	27.88		20.07	
	Crop Value	167.88		120.87	
	Crop Insurance Receipts	2.18		2.29	
	Miscellaneous Receipts	1.97		2.68	
	Total Receipts	172.03	6.17/Bu	125.83	6.27/Bu
B.	OPERATING COSTS				
	Fertilizer	19.45		23.16	
	Chemicals	14.62		6.12	
	Seed	2.94		5.55	
	Cash Rent and Crop Share	10.01		20.71	
	Machinery Operating Costs	16.21		12.31	
	Miscellaneous	13.76		8.65	
	Interest on Operating Capital	4.84		5.96	
	Depreciation	22.49		13.00	
	Total Operating Cost	108.71	3.90/Bu	99.89	4.98/Bu
C.	PRODUCTION COSTS				
	Operating Costs	108.71		99.89	
	Interest on Equity - Land	30.51		3.28	
	Interest on Equity - Bldg. Machinery and Supplies	12.97		5.66	
	Long Term Interest Paid	15.73		7.39	
	Unpaid Labour	14.81		7.13	
	Total Production Cost	182.73	6.55/Bu	123.35	6.15/Bu
D.	MANAGEMENT FACTORS				
	Return Over Operating Cost	63.33	2.27/Bu	25.94	1.29/Bu
	Return To Management	-10.70	-0.38/Bu	2.48	0.12/Bu
	Land Investment	690.44		554.07	
	Building and Machinery Investment	216.63		140.48	
	Supply Inventory	12.34		53.64	
	Labour Hours (Per Acre)	2.68		1.57	

TABLE 30: SUMMARY OF COSTS AND RETURNS FOR BARLEY PRODUCTION BY SOIL TYPE - 1982

		THIN BLACK		DARK-BROWN		GREY-WOODED	
A.	INCOME						
	Number of Farms	32		4		18	
	Acreage Per Farm	269.06		135.00		263.00	
				$/Acre			
	Yield (Bu/Acre)	67.22		57.67		51.92	
	Crop Value	128.77		109.57		98.67	
	Crop Insurance Receipts	0.41					
	Miscellaneous Receipts	2.40		2.81		5.08	
	Total Receipts	131.58	1.96/Bu	112.37	1.95/Bu	103.74	2.00/Bu
B.	OPERATING COSTS						
	Fertilizer	22.56		18.02		22.73	
	Chemicals	9.29		5.43		5.17	
	Seed	5.96		7.51		4.68	
	Cash Rent and Crop Share	5.54		3.92		8.76	
	Machinery Operating Costs	17.29		14.56		13.92	
	Miscellaneous	4.12		1.02		3.32	
	Interest on Operating Capital	12.94		9.16		10.61	
	Depreciation	21.40		16.25		12.07	
	Total Operating Cost	104.89	1.56/Bu	79.23	1.37/Bu	86.04	1.66/Bu
C.	PRODUCTION COSTS						
	Operating Costs	104.89		79.23		86.04	
	Interest on Equity - Land	32.53		30.63		13.74	
	Interest on Equity - Bldg. Machinery, and Supplies	11.60		10.19		8.08	
	Long Term Interest Paid	19.03		7.36		8.70	
	Unpaid Labour	15.99		19.94		11.76	
	Total Production Cost	184.03	2.74/Bu	147.35	2.56/Bu	128.33	2.47/Bu
D.	MANAGEMENT FACTORS						
	Return Over Operating Cost	26.69	0.40/Bu	33.14	0.57/Bu	17.71	0.34/Bu
	Return To Management	-52.44	-0.78/Bu	-34.98	-0.61/Bu	-24.59	-0.47/Bu
	Land Investment	737.04		649.96		549.79	
	Building and Machinery Investment	207.82		164.20		154.85	
	Supply Inventory	6.30		12.32		39.84	
	Labour Hours (Per Acre)	2.82		3.43		2.22	

TABLE 31: SUMMARY OF COSTS AND RETURNS FOR OATS PRODUCTION BY SOIL TYPE - 1982

		THIN BLACK		DARK-BROWN		GREY-WOODED	
A.	INCOME						
	Number of Farms	11		5		10	
	Acreage Per Farm	85.73		80.40		47.00	
		- - - - - - - - - - -		$/Acre	- - - - - - - - - - -		
	Yield (Bu/Acre)	92.59		64.53		78.34	
	Crop Value	102.59		99.91		86.17	
	Crop Insurance Receipts			18.97			
	Miscellaneous Receipts	2.60		2.95		5.04	
	Total Receipts	105.19	1.14/Bu	128.83	1.89/Bu	91.21	1.16/Bu
B.	OPERATING COSTS						
	Fertilizer	22.82		14.89		18.46	
	Chemicals	4.29		4.42		3.33	
	Seed	5.93		7.15		4.73	
	Cash Rent and Crop Share	6.42		-		1.56	
	Machinery Operating Costs	19.30		13.92		15.04	
	Miscellaneous	5.36		6.20		2.98	
	Interest on Operating Capital	15.28		10.63		13.25	
	Depreciation	25.00		14.58		13.76	
	Total Operating Cost	109.57	1.18/Bu	75.13	1.16/Bu	76.57	0.98/Bu
C.	PRODUCTION COSTS						
	Operating Costs	109.57		73.13		76.57	
	Interest on Equity - Land	38.25		41.77		13.09	
	Interest on Equity - Bldg. Machinery, and Supplies	14.95		8.18		8.46	
	Long Term Interest Paid	11.29		9.44		14.36	
	Unpaid Labour	16.23		12.15		18.22	
	Total Production Cost	190.30	2.06/Bu	146.66	2.27/Bu	130.70	1.67/Bu
D.	MANAGEMENT FACTORS						
	Return Over Operating Cost	-4.39	-0.05/Bu	46.70	0.72/Bu	14.64	0.19/Bu
	Return To Management	-85.11	-0.92/Bu	-24.83	-0.38/Bu	-39.48	-0.50/Bu
	Land Investment	781.29		630.46		432.32	
	Building and Machinery Investment	243.41		140.34		161.19	
	Supply Inventory	3.02		7.79		47.97	
	Labour Hours (Per Acre)	3.07		3.61		3.86	

Operating costs ranged from a low of $75.13 per acre on dark-brown soil to a high of $109.57 on thin-black soil. Again, the higher operating cost observed for farms on thin-black soil is attributed to higher costs for materials, machine operating, interest on operating capital, depreciation, and cash rent/crop share. As such, owing to the high cost structure associated with thin-black soil, resulted in farms on this type of soil having the lowest net returns despite their high production. Taking into consideration all production costs the average farm on thin-black soil experienced a negative return to management of $85.11 per acre. However, farms on dark-brown and grey-wooded soils had sufficient returns to cover their operating costs but were short in covering their total production costs by $24.83 and $39.48 per acre, respectively. Investment in land, buildings, and machinery ranged from $593.51 per acre for the grey-wooded soil group to $1,024.70 per acre for the thin-black soil group.

To summarize, some of the conclusions that can be drawn as a result of this analysis by soil type are as follows:

1. For wheat, barley, canola, and oats, highest yields were observed for the thin-black soil group;
2. Highest operating costs were reported for the thin-black soil group. Noticeably so were the costs for material inputs, machine operating, depreciation and interest on operating capital;
3. The high investments reported for the thin-black soil group resulted in this group having the highest interest on equity and long term interest paid;
4. The total production costs for grain in the thin-black soil zone were approximately 37 per cent higher compared to the grey-wooded and dark-brown soil zones;
5. Despite the high production achieved on thin-black soil, net returns were generally higher on the grey-wooded and dark brown soils. One reason for this is the lower cost structure that is often associated with grain production on grey-wooded and dark brown soils.
6. Investment in land, buildings, and equipment was significantly higher for the thin-black soil group.